9-2320-260-34-2-5

TM 9-2320-260-34-2-5

TECHNICAL MANUAL

VOLUME 2 OF 2

PART 5 OF 5

MAINTENANCE

DIRECT SUPPORT AND GENERAL SUPPORT LEVEL

5-TON, 6X6, M809 SERIES TRUCKS (DIESEL)

TRUCK, CHASSIS: M809, M809A1, M810, M811, M811A1, M811A2, M812; TRUCK, CHASSIS, ROCKET LAUNCHER: M812A1; TRUCK, CARGO: M813, M813A1, M814; TRUCK, BOLSTER, LOGGING: M815; TRUCK, WRECKER, MEDIUM: M816; TRUCK, DUMP: M817; TRUCK, TRACTOR: M818; TRUCK, TRACTOR, WRECKER: M819; TRUCK, VAN, EXPANSIBLE: M820, M820A1, M820A2; TRUCK, STAKE, BRIDGE TRANSPORTING: M821

Chapter 18
Body
Accessory
Items

Chapter 19
Maintenance of
Material Used
in Conjunction
with Major
Items

Appendix A
References

HEADQUARTERS, DEPARTMENT OF THE ARMY

DECEMBER 1980

.D 101. 11:

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WARNING

EXHAUST GASES CAN BE DEADLY

Exposure to exhaust gases produces symptoms of headache, dizziness, loss of muscular control, apparent drowsiness, and coma. Permanent brain damage or death can result from severe exposure.

Carbon monoxide occurs in the exhaust fumes of fuel burning heaters and internal combustion engines, and becomes dangerously concentrated under conditions of inadequate ventilation. The following precautions must be observed to insure the safety of personnel whenever fuel burning heater(s) or engine of any vehicle is operated for maintenance purposes or tactical use.

Do not operate heater or engine of vehicle in an enclosed area unless it is adequately ventilated.

Do not idle engine for long periods without maintaining adequate ventilation in personnel compartments.

Do not drive any vehicle with inspection plates or cover plates removed unless necessary for maintenance purposes.

Be alert at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, immediately ventilate personnel compartments. If symptoms persist, remove affected personnel from vehicle and treat as follows: expose to fresh air; keep warm; do not permit physical exercise; if necessary, administer artificial respiration.

If exposed, seek prompt medical attention for possible delayed onset of acute lung congestion. Administer oxygen if available.

The best defense against exhaust gas poisoning is adequate ventilation.

WARNING

Serious or fatal injury to personnel may result
if the following instructions are not complied with.

Dry cleaning solvent is flammable. Do not use near an open flame. Keep a fire extinguisher nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and damage to equipment.

Eye shields must be worn when using compressed air. Eye injury can occur if eye shields are not used.

Smoking, sparks, open flame and hot or glowing objects are not allowed within 50 feet of work area when working on fuel burning heater systems. Fuel may explode and cause injury to personnel and damage to equipment.

*TM 9-2320-260-34-2-5

TECHNICAL MANUAL
NO. 9-2320-260-34-2-5

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 31 December 1980

TECHNICAL MANUAL
VOLUME 2 OF 2
PART 5 OF 5

MAINTENANCE
DIRECT SUPPORT AND GENERAL SUPPORT LEVEL
5-TON, 6X6, M809 SERIES TRUCKS
(DIESEL)

Model		NSN Without Winch	NSN With Winch
Chassis	M809	2320-00-050-8842	2320-00-050-8841
Chassis	M809A1		2320-00-050-8941
Chassis	M810	2320-00-051-0586	2320-00-051-0585
Chassis	M811	2320-00-050-8986	2320-00-050-8985
Chassis	M811A1		2320-00-050-8989
Chassis	M811A2	2320-00-050-9005	
Chassis	M812		2320-00-050-9011
Chassis, Rocket Launcher	M812A1		2320-00-050-9040
Truck, Cargo	M813	2320-00-050-8902	2320-00-050-8890
	M813A1	2320-00-050-8913	2320-00-050-8905
	M814	2320-00-050-8988	2320-00-050-8987
Truck, Bolster, Logging	M815		2320-00-050-8927
Truck, Wrecker, Medium	M816		2320-00-051-0489
Truck, Dump	M817	2320-00-050-8970	2320-00-051-0589
Truck, Tractor	M818	2320-00-050-8984	2320-00-050-8978
Truck, Tractor, Wrecker	M819		2320-00-050-9004
Truck, Van, Expansible	M820	2320-00-050-9006	
	M820A1	2320-00-050-9007	
	M820A2	2320-00-050-9010	
Truck, Stake, Bridge Transporting	M821	2320-00-050-9015	

Current as of 31 December 1980

*This manual, together with TM 9-2320-260-34-2-1, 31 December 1980; TM 9-2320-260-34-2-2, 31 December 1980; TM 9-2320-260-34-2-3, 31 December 1980; and TM 9-2320-260-34-2-4, 31 December 1980 supersedes TM 9-2320-260-34-2, 5 October 1972, including all changes.

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedure, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publication and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Tank Automotive Materiel Readiness Command, ATTN: DRSTA-MB, Warren, Michigan 48090. A reply will be furnished to you.

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CHAPTER 18

BODY ACCESSORY ITEMS GROUP MAINTENANCE

Section I. SCOPE

18-1. EQUIPMENT ITEMS COVERED. This chapter gives equipment maintenance procedures for canvas accessory items for which there are authorized corrective maintenance tasks at the direct and general support maintenance levels.

18-2. EQUIPMENT ITEMS NOT COVERED. All equipment items for which corrective maintenance is authorized at the direct and general support maintenance levels are covered in this chapter.

Section II. CANVAS ACCESSORY ITEMS

18-3. CAB TOP COVER ASSEMBLY REPAIR. For repair of cab top cover assembly, refer to FM 43-3.

18-4. CARGO BODY COVER REPAIR (TRUCKS M813, M813A1, AND M814). For repair of cargo body cover, refer to FM 43-3.

18-5. CARGO BODY CURTAIN REPAIR (TRUCKS M813, M813A1, AND M814). For repair of cargo body curtain, refer to FM 43-3.

CHAPTER 19

MAINTENANCE OF MATERIAL USED IN CONJUNCTION WITH MAJOR ITEMS

Section I. SCOPE

19-1. EQUIPMENT ITEMS COVERED. This chapter gives equipment maintenance procedures for winterization kits, deep water fording kit, and special purpose kits for which there are authorized corrective maintenance tasks at the direct and general support maintenance levels.

19-2. EQUIPMENT ITEMS NOT COVERED. All equipment items for which corrective maintenance is authorized at the direct and general support maintenance levels are covered in this chapter.

Section II. WINTERIZATION KITS

19-3. HOT WATER PERSONNEL HEATER KIT INSTALLATION.

TOOLS:
- Combination box and open end wrench set NSN 5120-00-357-8411
- Drill
- Cutter
- Scribe
- Ruler
- Flat-tip screwdriver
- Cross-tip screwdriver, Phillips type
- Hammer
- Punch
- 1/2-inch drive ratchet
- 1/8-inch bit
- 3/16-inch bit
- 3/32-inch bit
- 5/16-inch bit
- 7/16-inch bit
- 5/8-inch bit
- 13/64-inch bit
- 9/32-inch bit
- Wood block

SUPPLIES:
- Hot water personnel heater kit
- Radiator cover assembly
- Spring assembly (4)
- Spring assembly (2)
- Loop (17)
- Screw (34)

PERSONNEL: Two

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedures.

(1) Open hood and lower side panel. Refer to TM 9-2320-260-10.

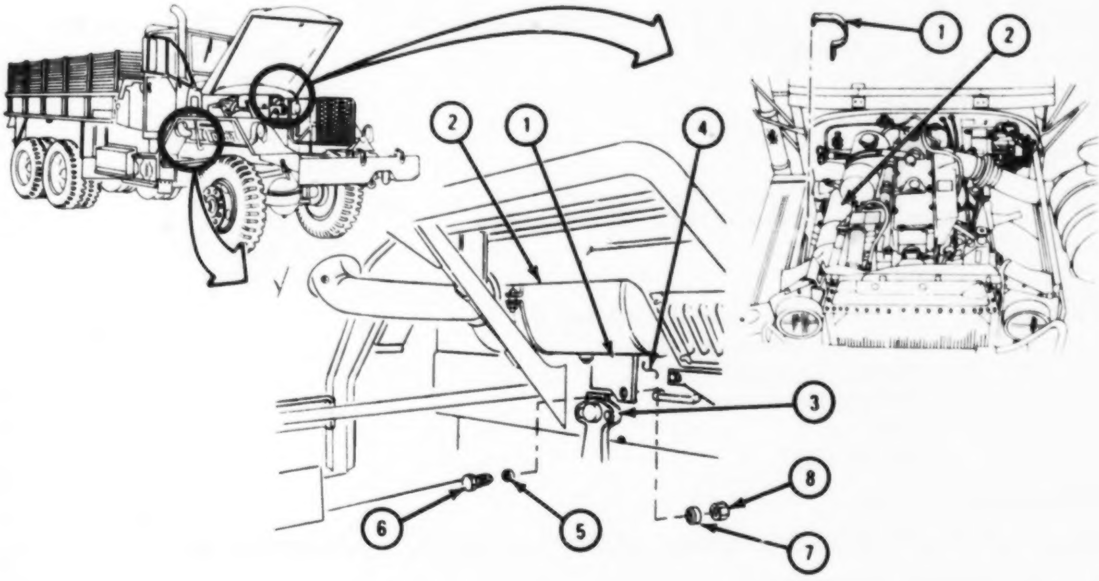
(2) Drain cooling system. Refer to TM 9-2320-260-20.

b. Installation of Support Assembly.

FRAME 1

1. Hold rear support bracket (1) around muffler (2) and above shock absorber mounting bracket (3). Aline hole in bracket with hole in frame rail (4).
2. Put in lockwasher (5) and screw (6).
3. Using wrenches, screw on and tighten lockwasher (7) and nut (8).

GO TO FRAME 2



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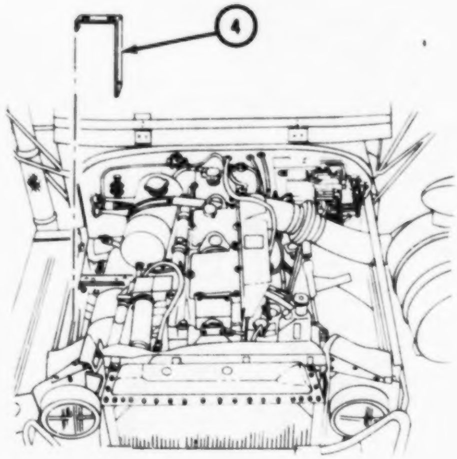
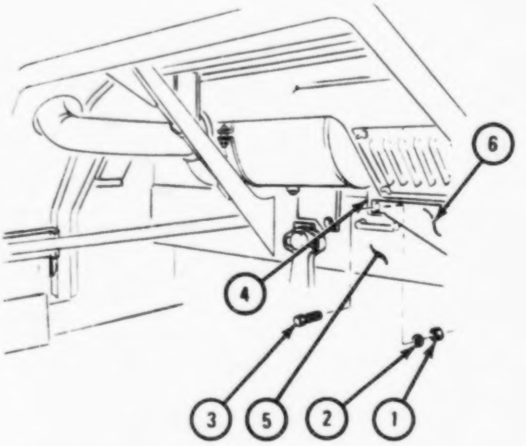
FRAME 2

1. Using wrench, unscrew and take off nut (1) and lockwasher (2). Take out screw (3).
2. Hold front support bracket (4) between frame rail (5) and support panel (6) and aline holes. Put back screw (3).
3. Using wrenches, screw on and tighten lockwasher (2) and nut (1).

GO TO FRAME 3





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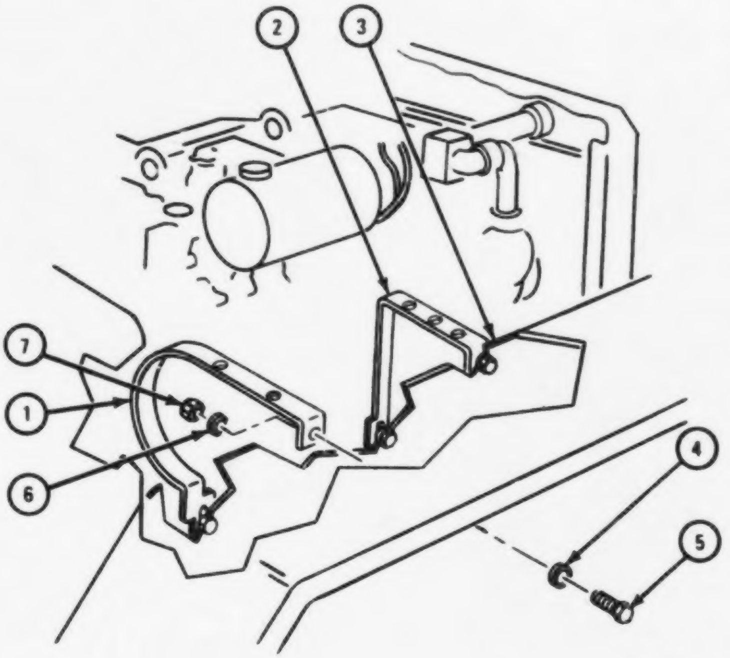
FRAME 3

1. Hold top of brackets (1 and 2) level and against fender panel (3).
2. Using scribe mark location of screw holes on fender panel (3).
3. Swing brackets (1 and 2) away from each other.
4. Using drill and 7/16-inch bit, drill holes in fender panel (3) at scribe marks.
5. Hold brackets (1 and 2) in place on drilled holes and put in two lockwashers (4) and screws (5).
6. Using wrenches, screw on and tighten two lockwashers (6) and nuts (7).

GO TO FRAME 4



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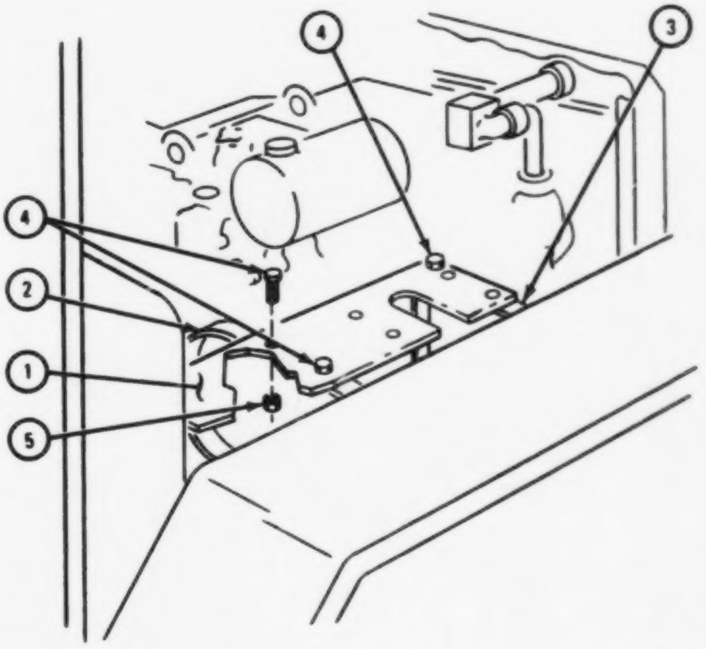
FRAME 4

1. Put support (1) on brackets (2 and 3) as shown. Put in three screws (4).
2. Using wrench, screw on and tighten three nuts (5).

END OF TASK



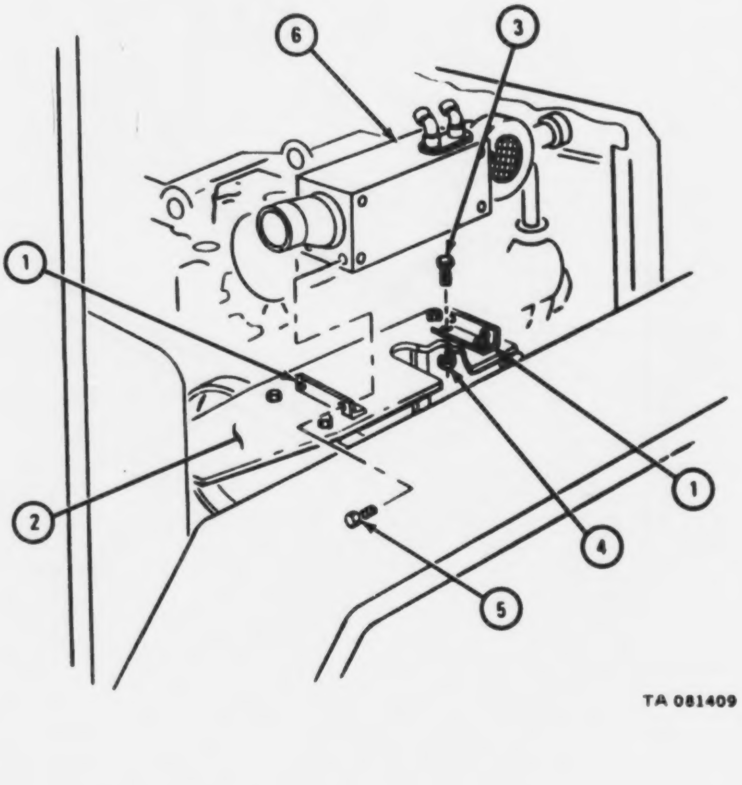
TA 081408

c. Installation of Hot Water Personnel Heater.

FRAME 1

1. Put two mounting brackets (1) on support assembly (2) as shown. Aline holes.
2. Put in four screws (3).
3. Using wrenches, screw on and tighten four nuts (4).
4. Using wrench, unscrew and take out four screws (5).
5. Put hot water heater (6) between brackets (1) and aline holes.
6. Using wrench, screw in and tighten four screws (5).

END OF TASK

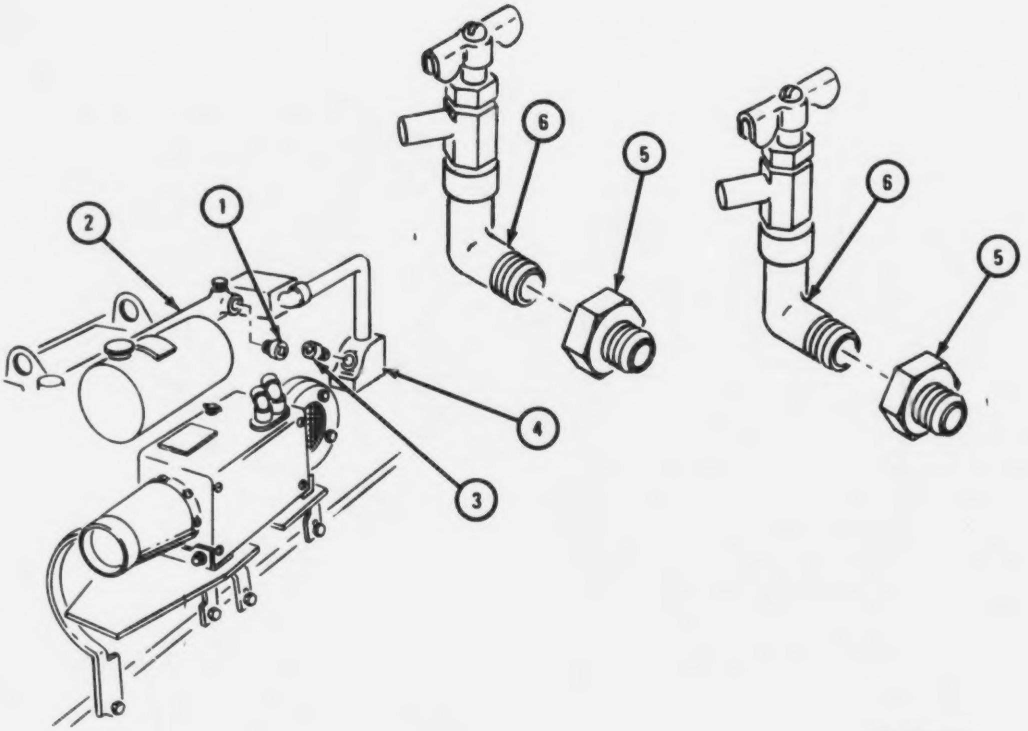


d. Installation of Coolant Hoses and Connections.

FRAME 1

1. Using 1/2-inch ratchet, unscrew and take out pipe plug (1) from water manifold (2).
2. Using 1/2-inch ratchet, unscrew and take out pipe plug (3) from oil cooler (4).
3. Using wrench, screw on and tighten two bushings (5) on cock assemblies (6).
4. Using wrench, screw two bushings (5) and cock assemblies (6) into pipe plug hole in water manifold (2) and oil cooler (4).

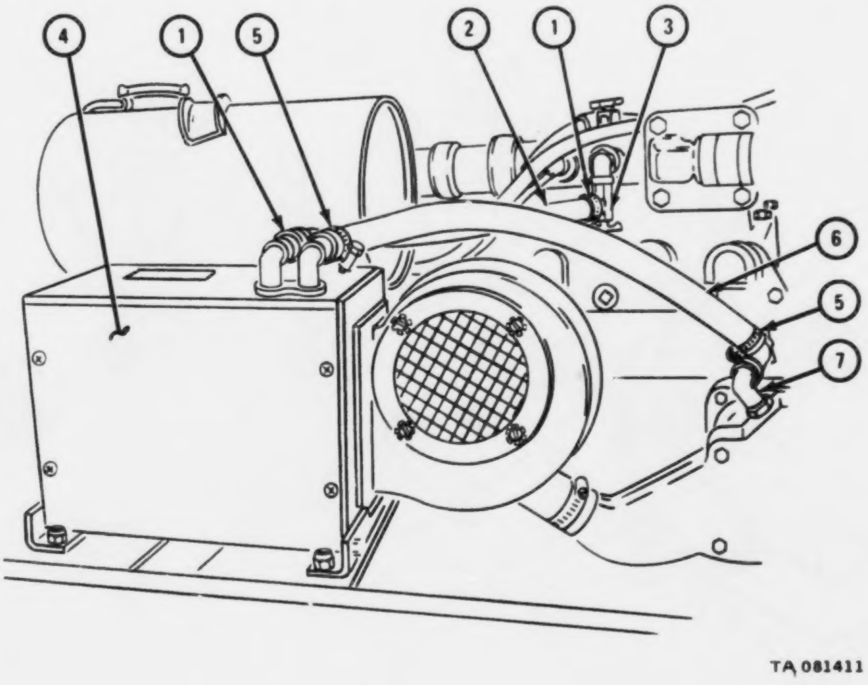
GO TO FRAME 2



FRAME 2

1. Put two clamps (1) on hose (2).
2. Put hose (2) on cock assembly (3) and hot water heater (4) as shown.
3. Using flat-tip screwdriver, tighten two clamps (1).
4. Put two clamps (5) on hose (6).
5. Put hose (6) on cock assembly (7) and hot water heater (4) as shown.
6. Using flat-tip screwdriver, tighten two clamps (5).

END OF TASK

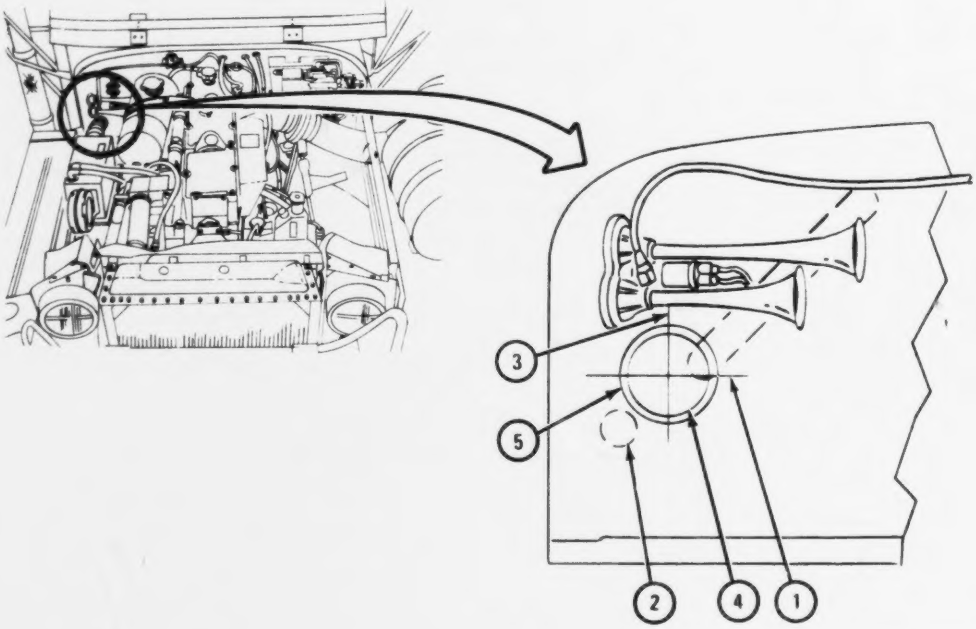


e. Installation of Ducting and Diverter.

FRAME 1

1. Using ruler and scribe, draw line (1). Line is level with floor and 2 7/16-inches above center line of knockout (2).
2. Using ruler and scribe, draw line (3). Line is straight up and down and 2 7/16 inches to right of center line of knockout (2).
3. Using scribe, draw inner circle (4) and outer circle (5). Inner circle has a diameter of 4 1/8 inches with center where lines (1 and 3) meet. Outer circle has a diameter of 5 inches with center where lines (1 and 3) meet.

GO TO FRAME 2

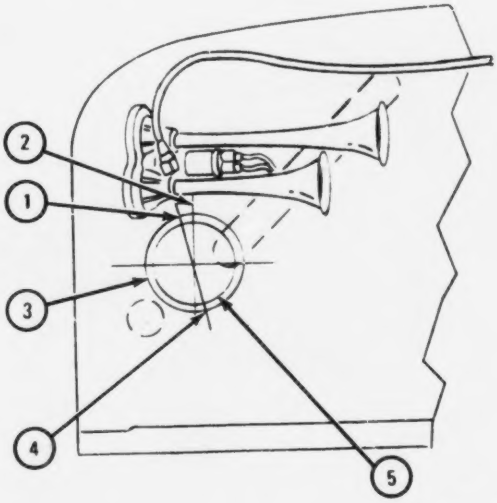


TA 081412

FRAME 2

1. Using ruler and scribe, mark point (1) 5/6 inch to left of line (2) and on outer circle (3).
2. Using ruler and scribe, mark point (4) 5/6 inch to right of line (2) and on outer circle (3).
3. Using drill and 3/16-inch bit, drill holes at points (1 and 4).
4. Using cutter, cut firewall along inner circle (5).

GO TO FRAME 3

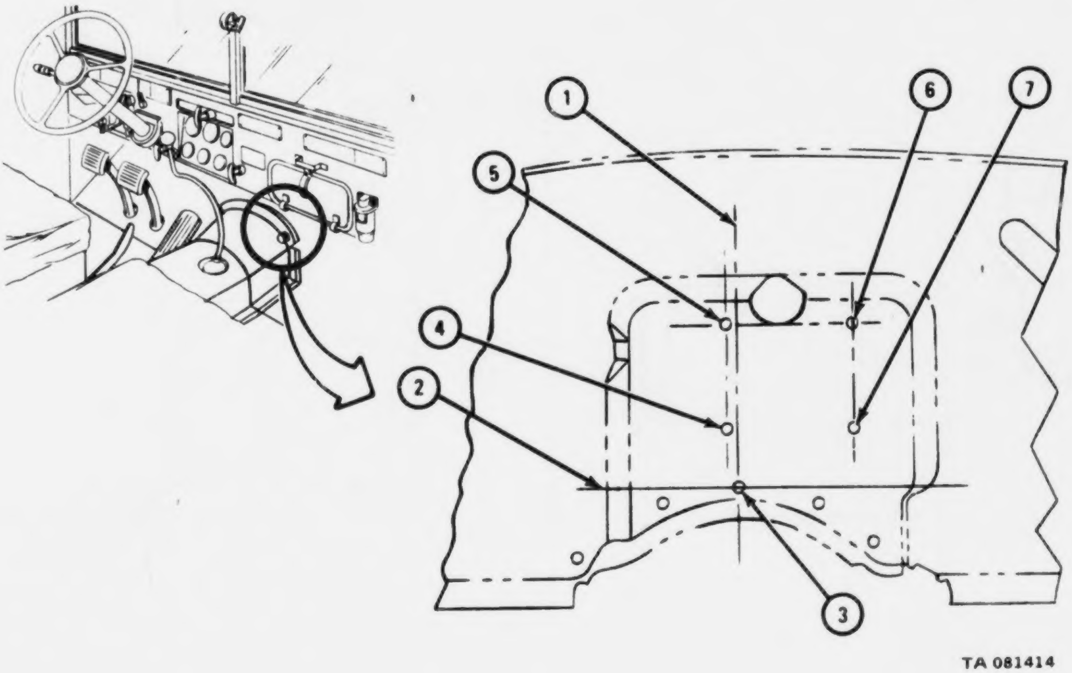


TA 081413

FRAME 3

1. Working in cab, using ruler and scribe, draw lines (1 and 2) on firewall. Line (1) is straight up and down from transmission tunnel center mounting screw (3). Line (2) is level with cab floor and goes through transmission tunnel center mounting screw.
2. Using ruler and scribe, mark firewall at point (4). Point is 1/2 inch to left of line (1) and 2 3/4 inches above line (2).
3. Using ruler and scribe, mark firewall at point (5). Point is 1/2 inch to left of line (1) and 7 13/16 inches above line (2).
4. Using ruler and scribe, mark firewall at point (6). Point is 5 3/16 inches to right of line (1) and 7 13/16 inches above line (2).
5. Using ruler and scribe, mark firewall at point (7). Point is 5 3/16 inches to right of line (1) and 2 3/4 inches above line (2).
6. Using drill and 5/16 inch bit, drill holes at points (4, 5, 6, and 7).

GO TO FRAME 4

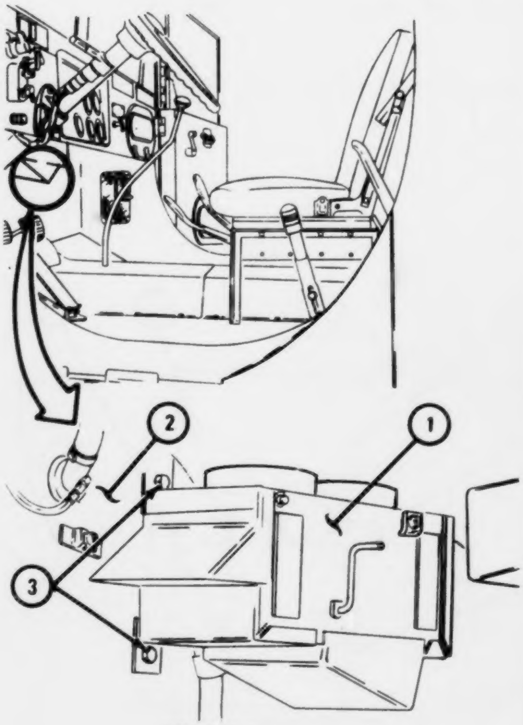


FRAME 4

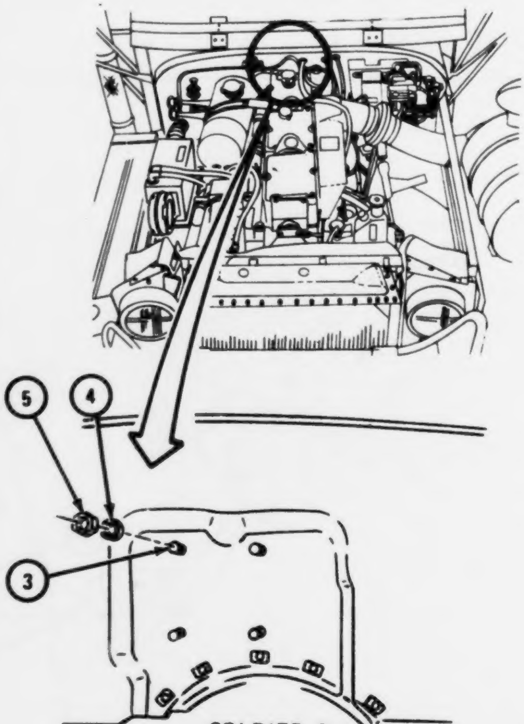
Soldier A 1. Working in cab, hold diverter (1) in place on firewall (2) and using wrench, put in and hold four screws (3).

Soldier B 2. Working in engine compartment using wrench, screw on and tighten four washers (4) and nuts (5) on screws (3).

GO TO FRAME 5



SOLDIER A



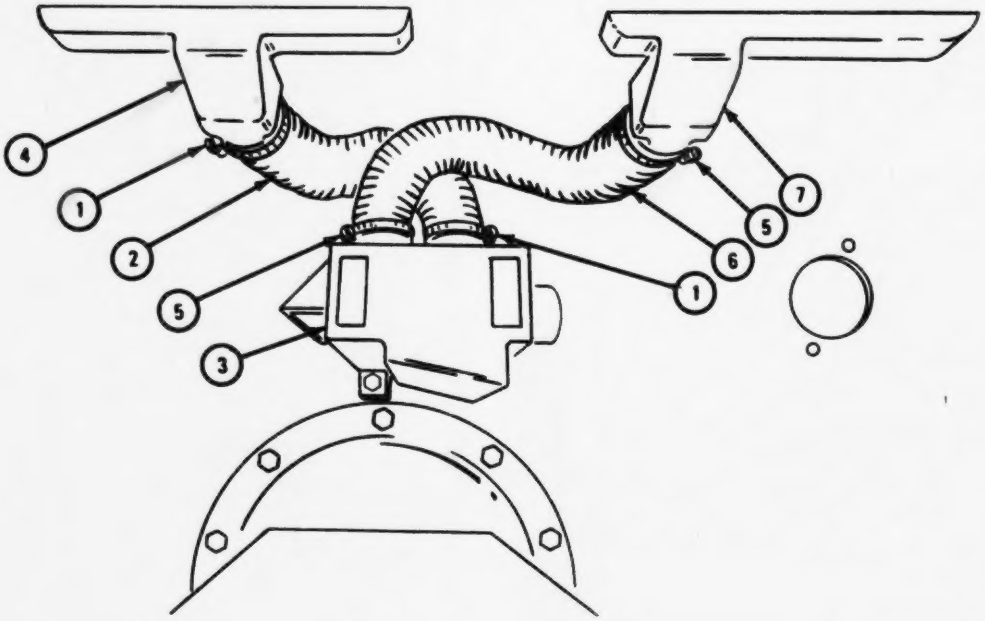
SOLDIER B

TA 081415

FRAME 5

1. Put two clamps (1) in place on 32-inch hose (2).
2. Put hose (2) on ports on diverter (3) and deflector (4) as shown.
3. Using flat-tip screwdriver, tighten two clamps (1).
4. Put two clamps (5) on 25-inch hose (6).
5. Put hose (6) on ports on diverter (3) and deflector (7).
6. Using flat-tip screwdriver, tighten two clamps (5).

GO TO FRAME 6



TA 081416

FRAME 6

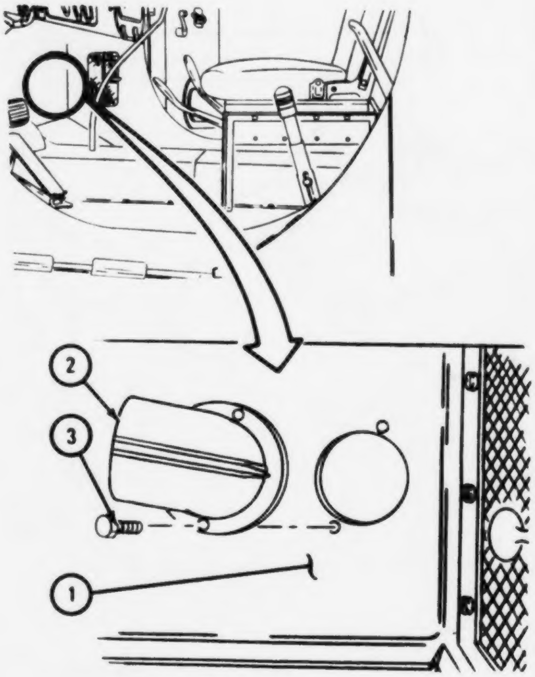
Soldier B 1. Working in engine compartment, hold wood block against sunken area of firewall (1).

Soldier A 2. Working in cab using hammer, flatten raised area of firewall (1).

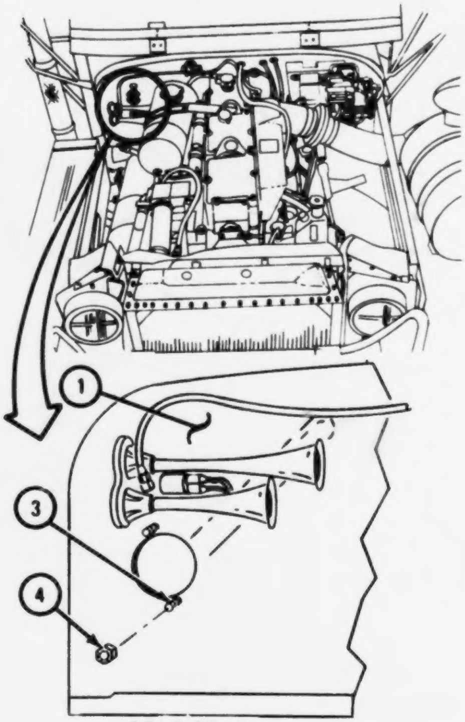
3. Hold adapter assembly (2) in place on firewall (1). Using wrench, put in and hold two screws (3).

Soldier B 4. Using wrench, screw on and tighten two nuts (4) on screws (3).

GO TO FRAME 7



SOLDIER A



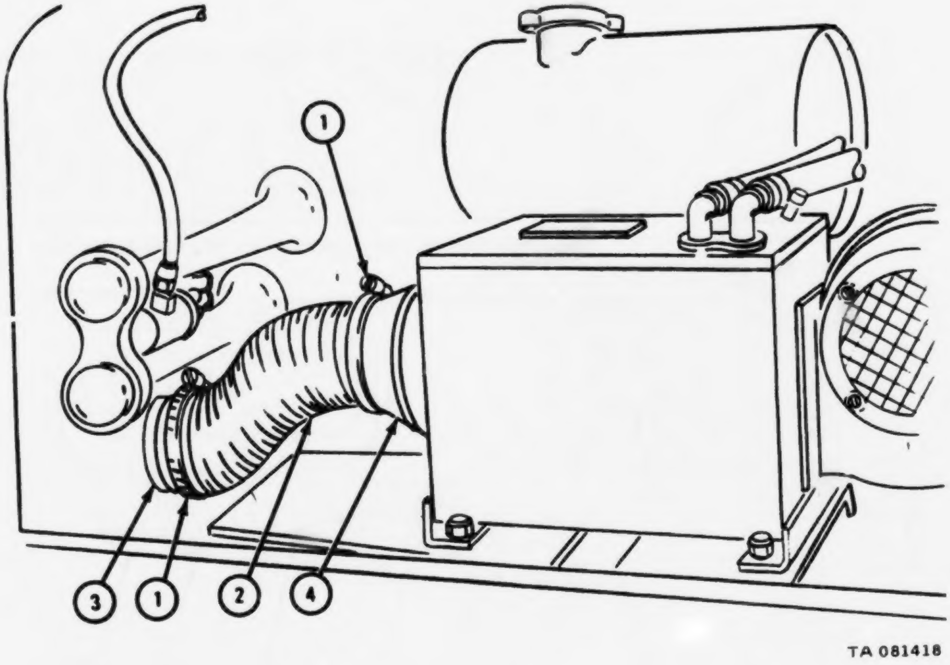
SOLDIER B

TA 081417

FRAME 7

1. Put two clamps (1) on 17 1/2-inch hose (2).
2. Put hose (2) on adapter assembly (3) and blower (4).
3. Using flat-tip screwdriver, tighten two clamps (1).

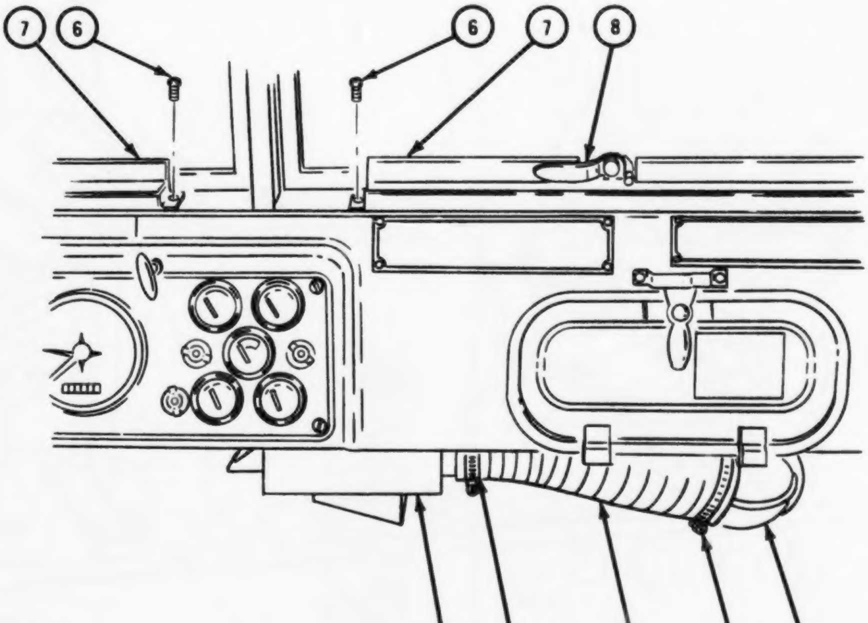
GO TO FRAME 8



FRAME 8

1. Put clamps (1 and 2) on 19 1/2-inch hose (3).
2. Put hose (3) on adapter assembly (4) and diverter (5).
3. Using flat-tip screwdriver, tighten clamps (1 and 2).
4. Using Phillips screwdriver, unscrew and take out four screws (6).
5. Put two deflectors (7) in place on instrument panel under window handles (8).
6. Using Phillips screwdriver, screw in and tighten four screws (6).

END OF TASK



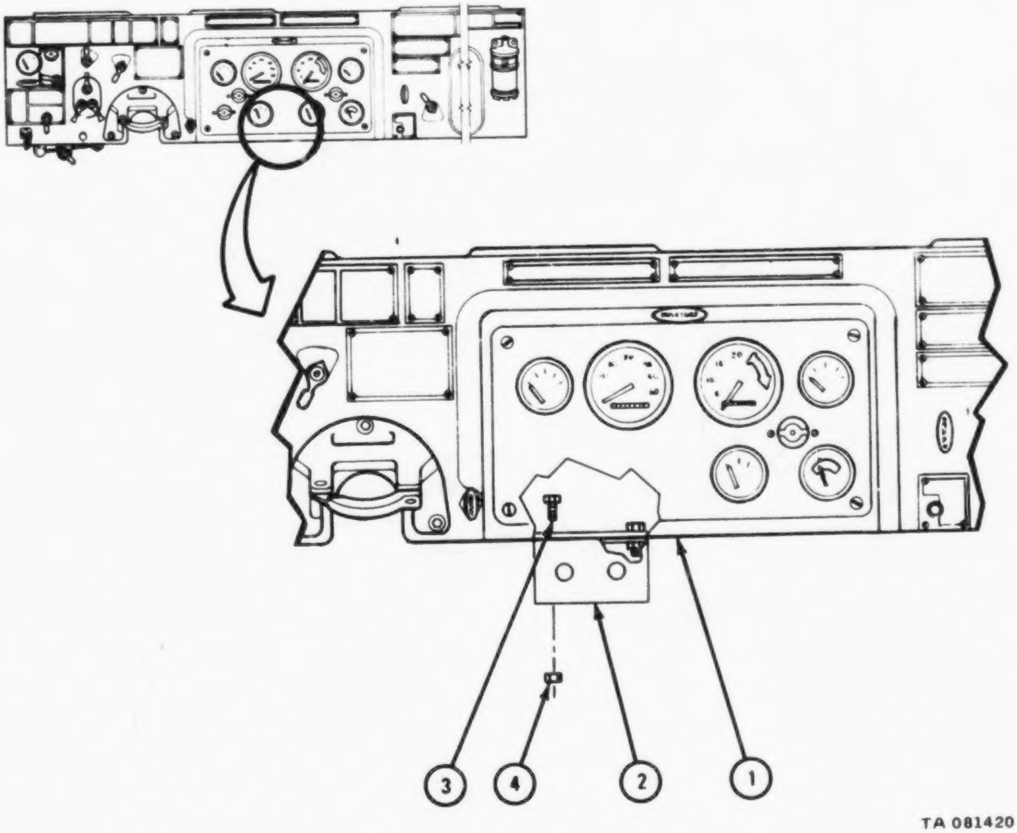
TA 081419

f. Installation of Control Cables.

FRAME 1

1. Using drill and 13/64-inch bit, drill hole in lower flange of instrument panel (1) 21 15/32 inches to the right of left edge of instrument panel.
2. Using drill and 13/64-inch bit, drill hole in lower flange of instrument panel (1) two inches to right of first hole.
3. Hold control cable bracket (2) in place on lower flange of instrument panel (1) and put in two screws (3).
4. Using wrench, screw on and tighten two nuts (4).

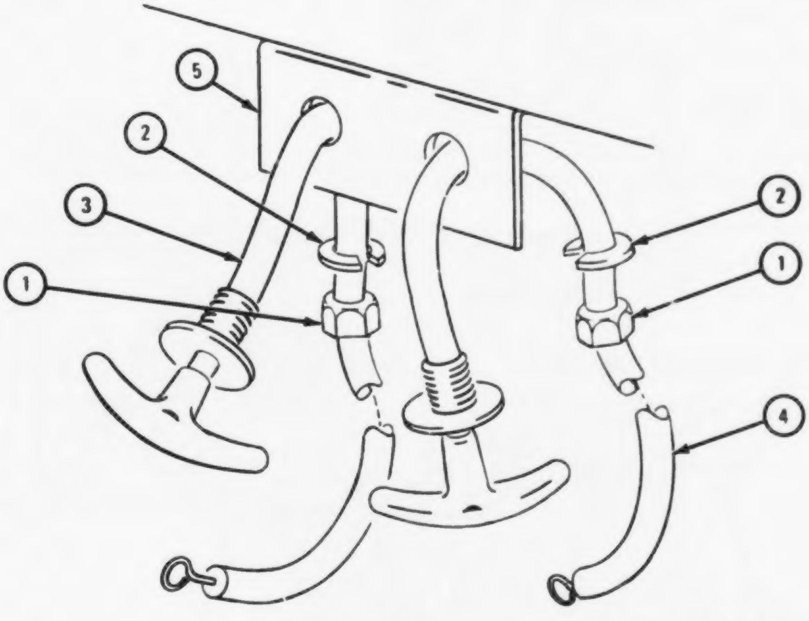
GO TO FRAME 2



FRAME 2

1. Unscrew and take off nuts (1) and lockwashers (2) from control cables (3 and 4).
2. Put 36-inch cable (3) into left hole in mounting bracket (5). Using wrench, screw on and tighten lockwasher (2) and nut (1).
3. Put 38 1/2-inch cable (4) into right hole in mounting bracket (5). Using wrench, screw on and tighten lockwasher (2) and nut (1).

GO TO FRAME 3

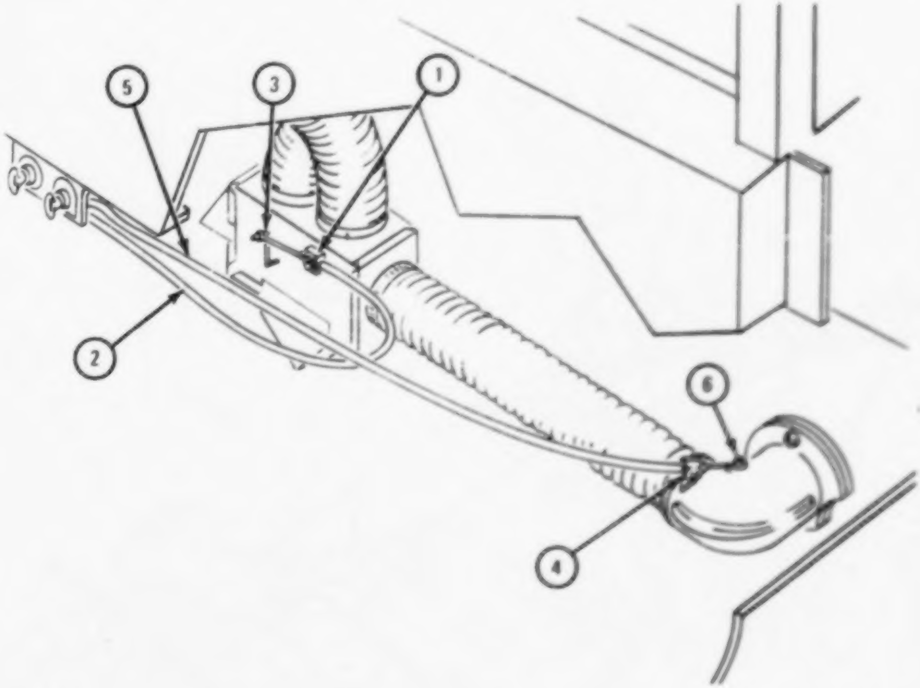


TA 081421

FRAME 3

1. Using phillips screwdriver, loosen clamp (1).
2. Put cable (2) through clamp (1) and on shaft (3) as shown.
3. Using phillips screwdriver, tighten clamp (1).
4. Using phillips screwdriver, loosen clamp (4).
5. Put cable (5) through clamp (4) and on shaft (6) as shown.
6. Using phillips screwdriver, tighten clamp (4).

GO TO FRAME 4

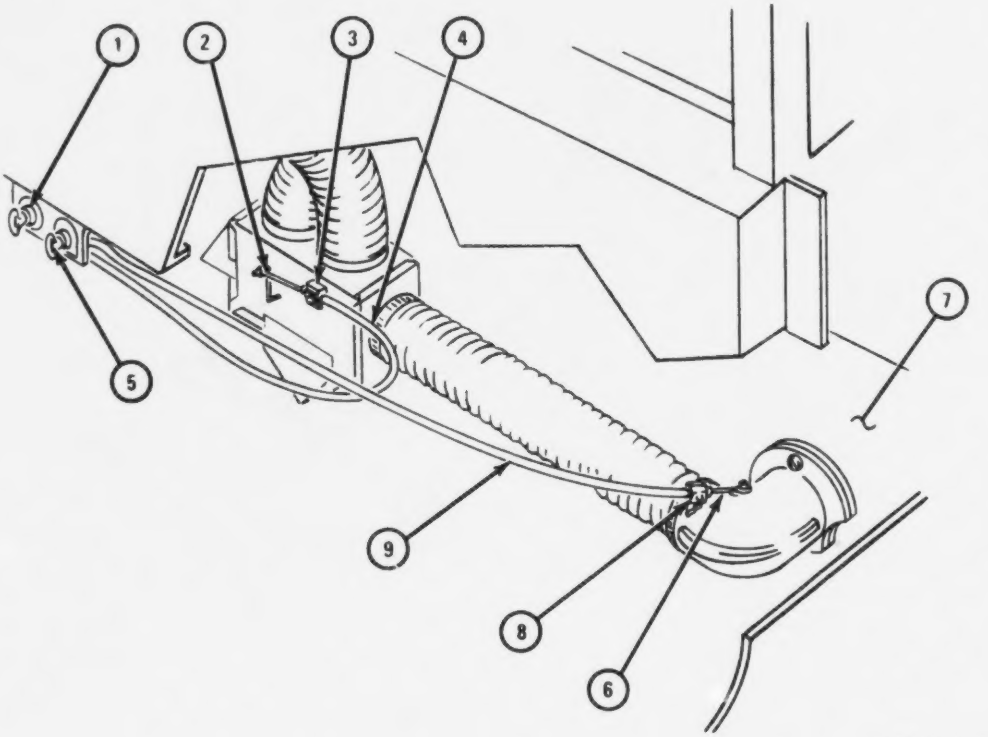


TA 081422

FRAME 4

1. Pull out DEFROSTER handle (1) and check that shaft (2) moved all the way to the right.
2. If shaft (2) did not move all the way to the right, using phillips screwdriver, loosen clamp (3). Slide cable (4) to right to take up slack. Using phillips screwdriver, tighten clamp.
3. Push in DEFROSTER handle (1).
4. Pull out AIR handle (5) and check that shaft (6) moved all the way out from firewall (7).
5. If shaft (6) did not move all the way out from firewall (7), using phillips screwdriver, loosen clamp (8). Slide cable (9) out to take up slack. Using phillips screwdriver, tighten clamp.

END OF TASK

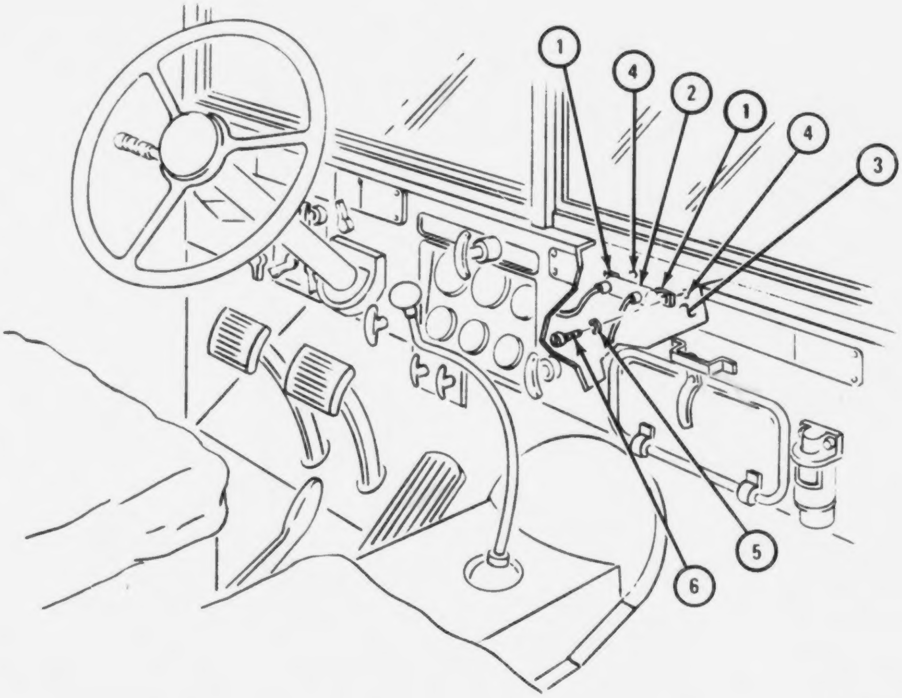


g. Installation of Electrical Wiring.

FRAME 1

1. Hold two retainers (1) on ends of resistor (2) with one hand. Hold retainers and resistor on firewall (3) 10 inches up from cab floor.
2. Using scribe, mark position of holes in retainers (1) on firewall (3). Set down retainers and resistor (2).
3. Using drill and 3/32-inch bit, drill holes at two scribe marks (4).
4. Hold two retainers (1) and resistor (2) in place on firewall (3). Using phillips screwdriver, screw in and tighten two lockwashers (5) and screws (6).

GO TO FRAME 2

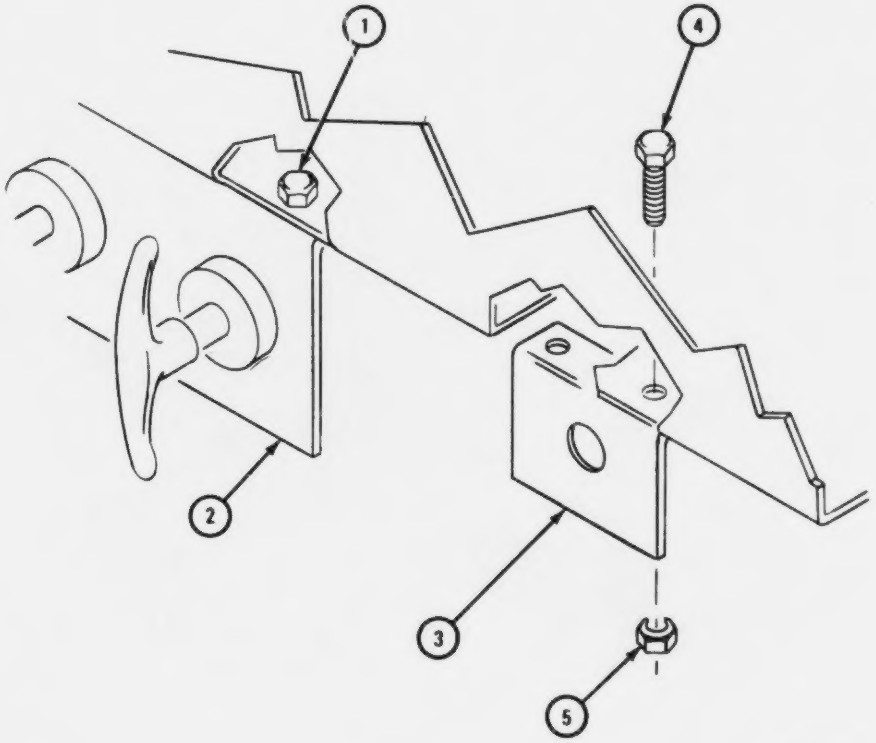


TA 081425

FRAME 2

1. Using drill and 9/32-inch bit, drill hole 5 inches to the right of right screw (1) in control cable (2).
2. Using drill and 9/32-inch bit, drill hole 6 inches to the right of right screw (1) in control cable (2).
3. Hold switch bracket (3) in place and put in two screws (4).
4. Using wrench, screw on and tighten two nuts (5).

GO TO FRAME 3

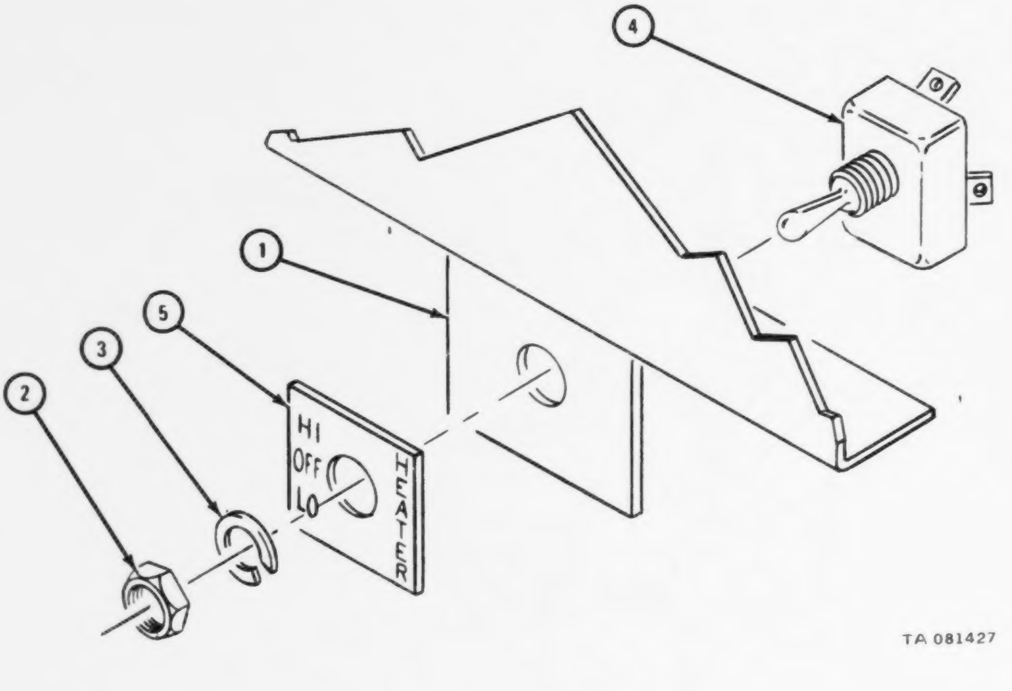


TA 081424

FRAME 3

1. Using drill and 1/8-inch bit, drill hole 3/8 inch below hole in switch bracket (1).
2. Using wrench, unscrew and take off nut (2) and lockwasher (3) from HEATER switch (4).
3. Put HEATER switch (4) through back of switch bracket (1) and put HEATER plate (5) on HEATER switch.
4. Using wrench, screw on and tighten nut (2) and lockwasher (3).
5. Set HEATER switch (4) to OFF position.

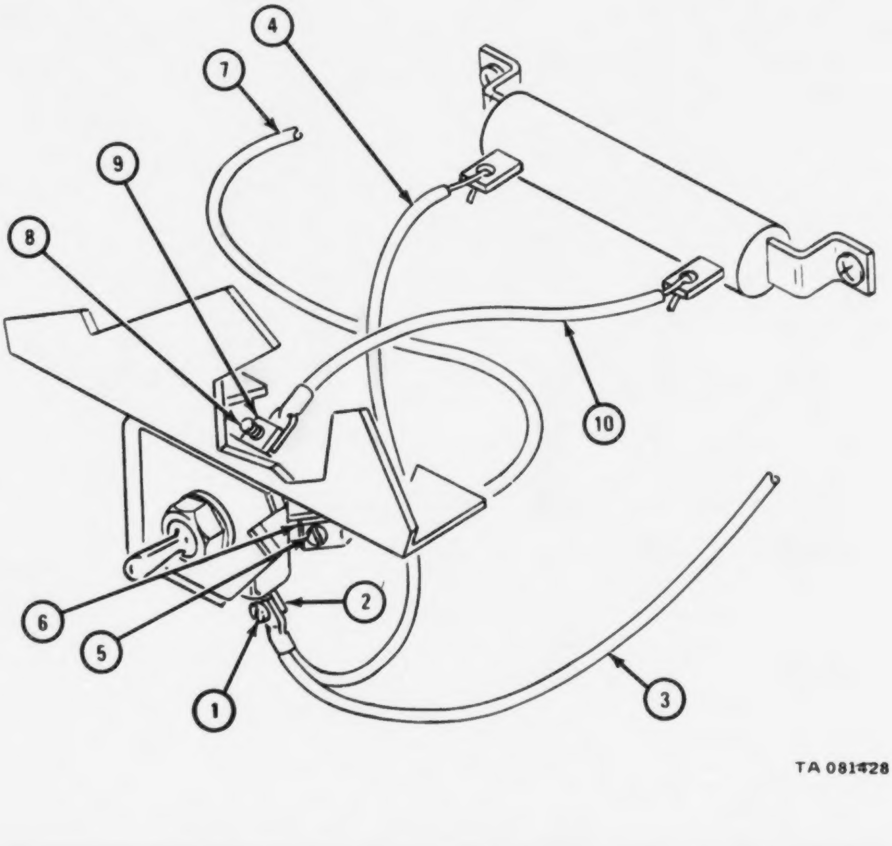
GO TO FRAME 4



FRAME 4

1. Using flat-tip screwdriver, unscrew and take out screw (1) from bottom switch terminal (2).
2. Hold 117-inch lead (3) and left resistor lead (4) on bottom terminal (2).
3. Using flat-tip screwdriver, screw in and tighten screw (1).
4. Using flat-tip screwdriver, unscrew and take out screw (5) from side terminal (6).
5. Hold 45-inch lead (7) on side terminal (6).
6. Using flat-tip screwdriver screw in and tighten screw (5).
7. Using flat-tip screwdriver, unscrew and take out screw (8) from top terminal (9).
8. Hold right resistor lead (10) on top terminal (9).
9. Using flat-tip screwdriver, screw in and tighten screw (8).

GO TO FRAME 5

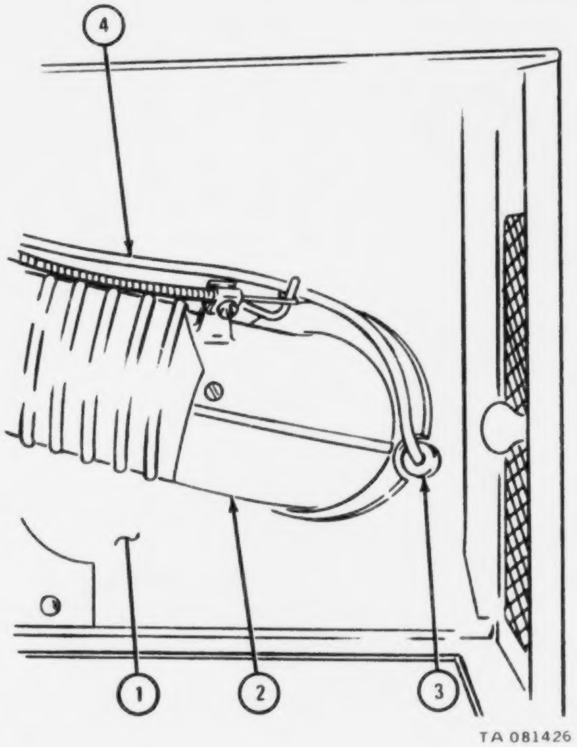


TA 081428

FRAME 5

1. Using drill and 5/8-inch bit, drill hole in firewall (1) next to cutout in adapter (2).
2. Put grommet (3) in place in hole and pass 117-inch lead (4) through hole into engine compartment.

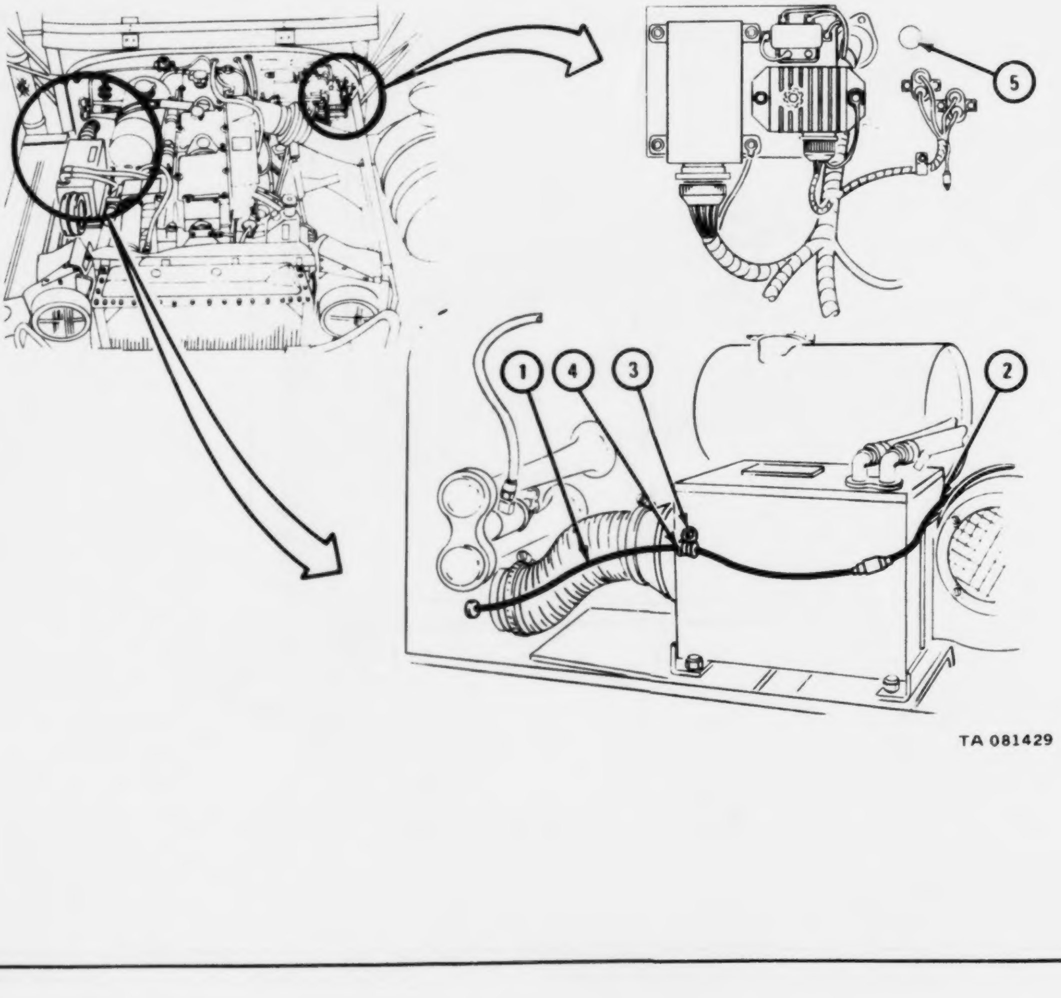
GO TO FRAME 6



FRAME 6

1. Go to engine compartment and join connector on 117-inch lead (1) to connector on heater blower motor lead (2).
2. Using phillips screwdriver, unscrew and take out screw (3).
3. Put clamp (4) on 117-inch lead (1). Using phillips screwdriver, screw in and tighten screw (3).
4. Using hammer and punch, tap out knockout (5).

GO TO FRAME 7



TA 081429

FRAME 7

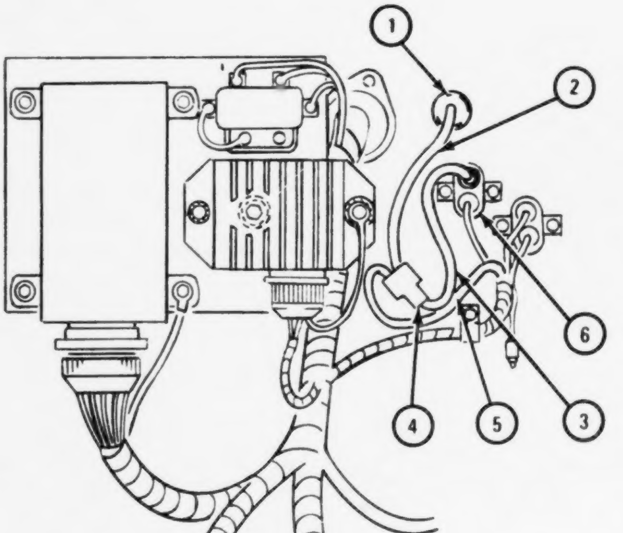
1. Put grommet (1) in place in knockout hole.
2. Go into cab and pass 45-inch lead (2) through grommet into engine compartment.
3. Go back to engine compartment and plug 45-inch lead (2) and six inch lead (3) into Y-connector (4).
4. Unplug lead 25 (5) from top circuit breaker (6). Plug lead 25 into Y-connector (4) and plug six inch lead (3) into top circuit breaker.

NOTE

Follow-on Maintenance Action Required:

1. Fill cooling system. Refer to TM 9-2320-260-20.
2. Check hot water personnel heater kit for proper operation. Refer to TM 9-2320-260-20.
3. Close hood. Refer to TM 9-2320-260-10.
4. Install hot water personnel heater radiator cover. Refer to para 19-13.

END OF TASK



TA 081430

19-4. HOT WATER PERSONNEL HEATER ASSEMBLY REPAIR. A damaged or defective heater assembly must be replaced with a new heater assembly. Refer to TM 9-2320-260-20 for replacement procedures.

19-5. ENGINE COOLANT HEATER KIT INSTALLATION.

TOOLS:
- 5/8-inch bit
- 3/8-inch bit
- 5/32-inch bit
- 9/64-inch bit
- 5/16-inch bit
- Punch
- Hammer
- Drill
- Cross-tip screwdriver, Phillips type
- Open end wrench set, pin GGG-W-636
- Pipe wrench
- Stud wrench
- Tubing cutter
- Drive ratchet
- Pliers
- 1.65-inch hole saw
- Ruler

SUPPLIES: Engine coolant heater kit

PERSONNEL: One

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedures.

(1) Disconnect battery ground. Refer to TM 9-2320-260-20.

(2) Take out batteries and battery box closest to front fender. Refer to TM 9-2320-260-20.

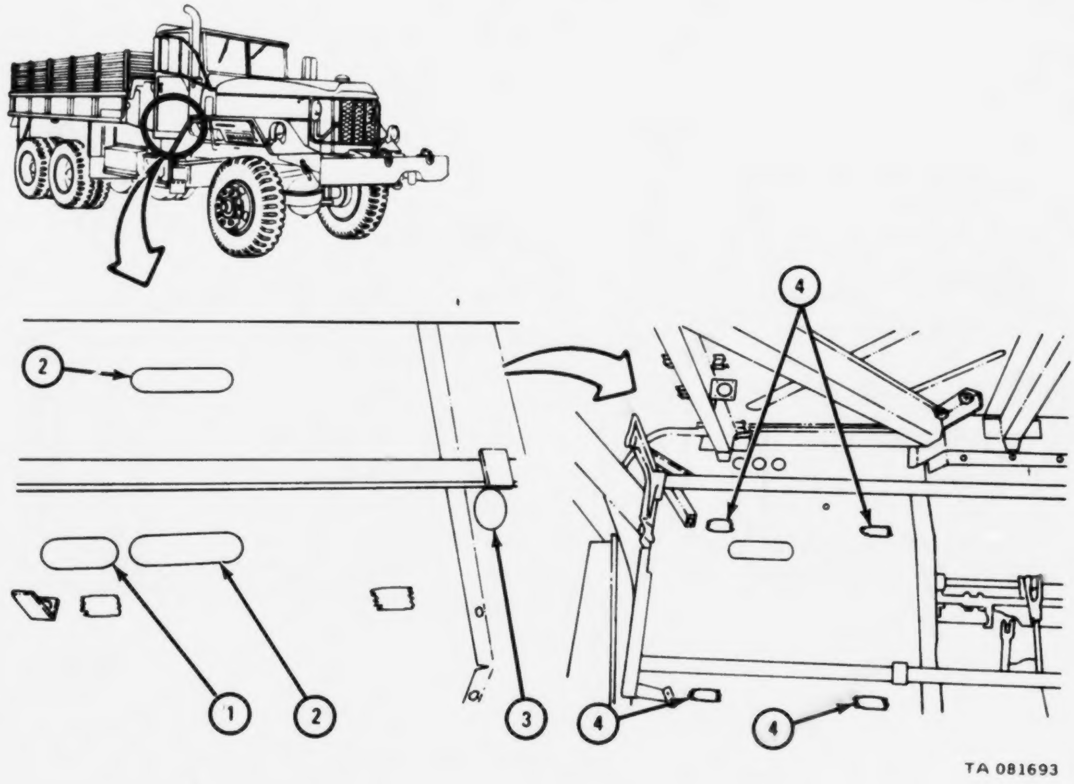
(3) Take out companion seat. Refer to TM 9-2320-260-20.

b. Vehicle Preparation.

FRAME 1

1. Using punch and hammer, tap out four knockout plugs (1, 2, and 3).
2. Pull off four pieces of tape (4) from screw holes.

END OF TASK

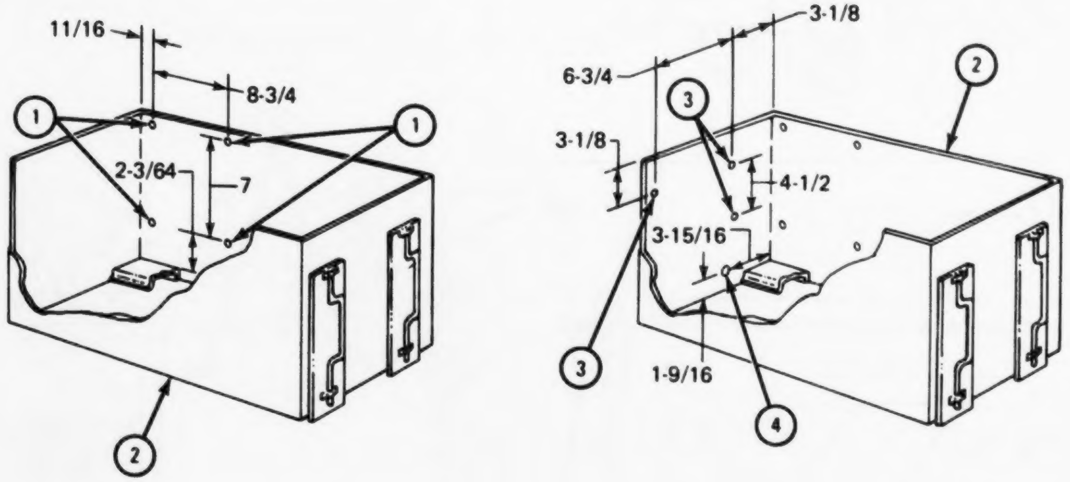


c. Heading: Heater Compartment Preparation.

FRAME 1

1. Using drill and 3/8-inch bit, drill four holes (1) in battery box (2) as shown.
2. Using drill and 3/8-inch bit, drill three holes (3) in battery box (2) as shown.
3. Using drill and 5/8-inch bit, drill one hole (4) in battery box (2) as shown.

GO TO FRAME 2

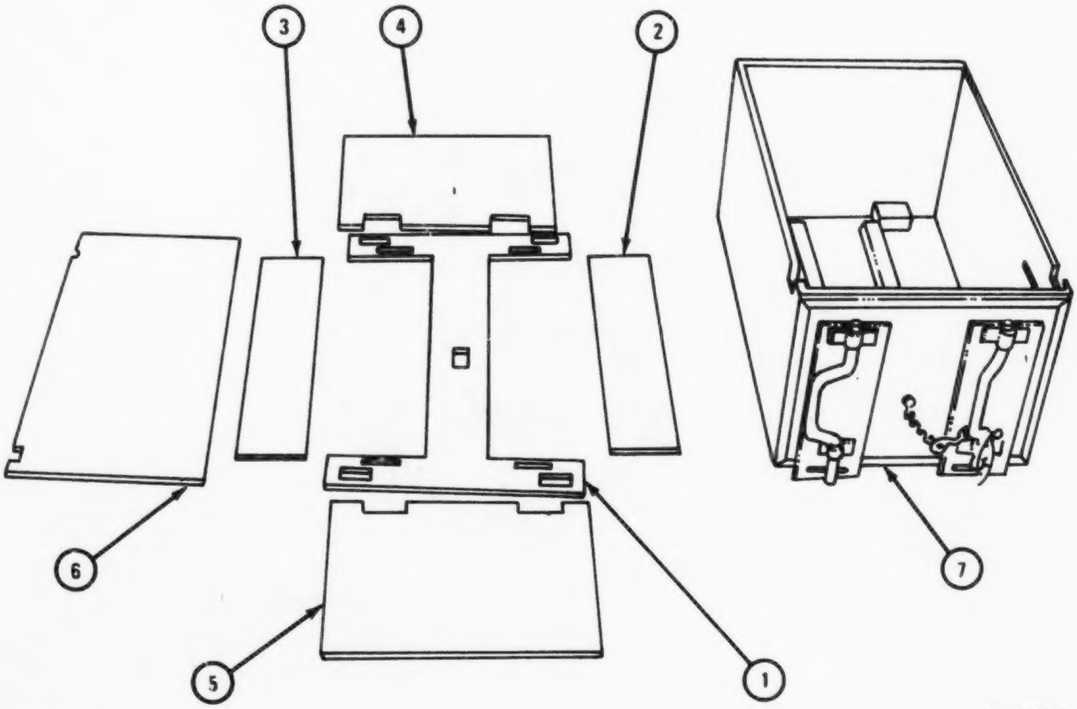

11/16
8-3/4
①
①
2-3/64
7
②
3-1/8
6-3/4
②
③
3-1/8
4-1/2
3-15/16
③
1-9/16
④

TA 081694

FRAME 2

1. Coat one side of insulation panels (1, 2, 3, 4, 5, and 6) with adhesive, 1/16-inch thick.
2. Press insulation panel (1) in place at bottom center of battery box (7).
3. Press insulation panel (2) in place at bottom side of battery box (7).
4. Press insulation panel (3) in place at other bottom side of battery box (7).
5. Press insulation panel (4) in place at one end of battery box (7).
6. Press insulation panel (5) in place at other end of battery box (7).
7. Press insulation panel (6) in place at right side of battery box (7).

END OF TASK

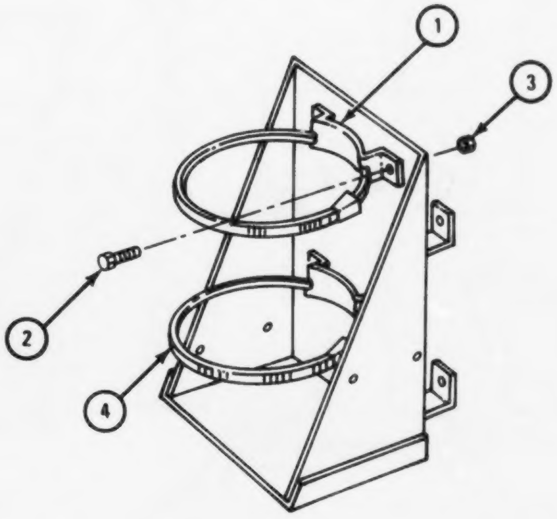


d. Assembly of Heater Assembly.

FRAME 1

1. Put two saddle brackets (1) in place.
2. Push four screws (2) through holes in saddle brackets (1).
3. Using wrenches, screw on and tighten four nuts (3).
4. Put ends of two clamps (4) through saddle brackets (1).

GO TO FRAME 2

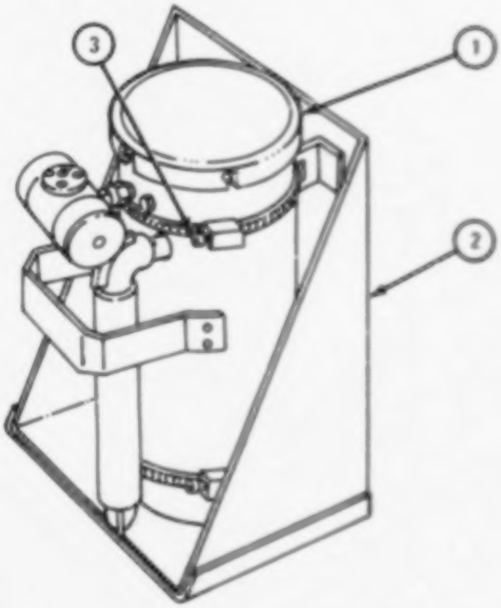


TA 081696

FRAME 2

1. Put coolant heater (1) in place in mounting bracket (2).
2. Using screwdriver, screw in and tighten two clamp screws (3).

GO TO FRAME 3

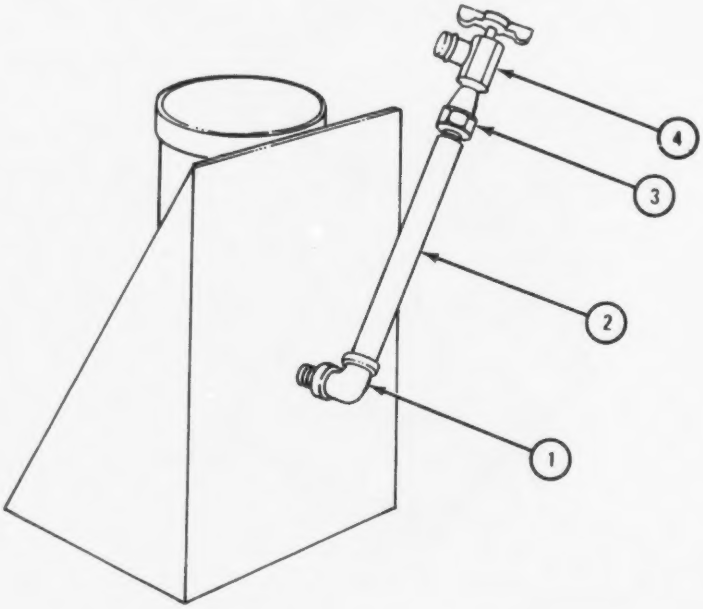


TA 081697

FRAME 3

1. Using pipe wrench, screw on and tighten elbow (1).
2. Using pipe wrench, screw in and tighten outlet pipe (2).
3. Using wrench, screw on and tighten reducer (3).
4. Using wrench, screw in and tighten petcock (4).

GO TO FRAME 4

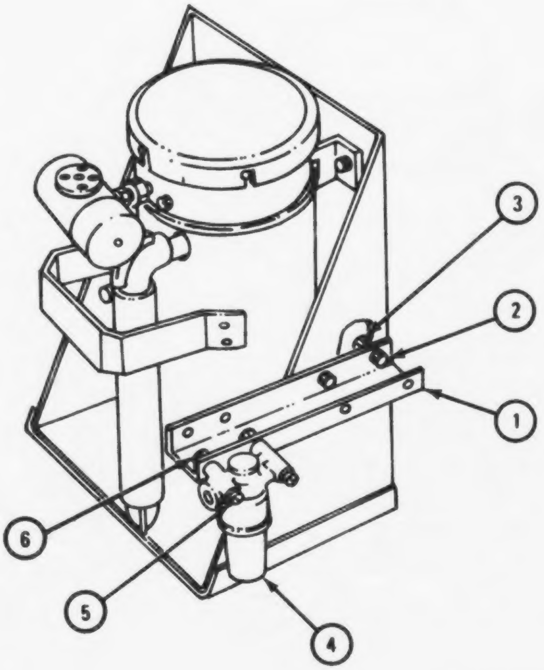


TA 081698

FRAME 4

1. Put channel bracket (1) in place.
2. Push two screws (2) through holes in channel bracket (1).
3. Using wrenches, screw on and tighten two nuts (3).
4. Put fuel filter (4) in place and aline two mounting holes.
5. Push two screws (5) through holes in fuel filter (4).
6. Using wrenches, screw on and tighten nuts (6).

GO TO FRAME 5

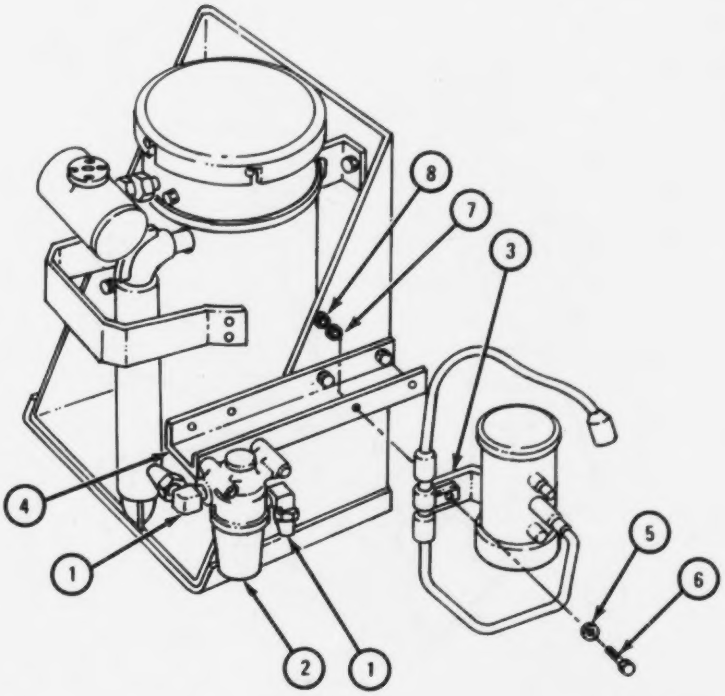


TA 081699

FRAME 5

1. Using wrench, screw two elbows (1) into fuel filter (2).
2. Aline holes in fuel pump bracket (3) with holes in channel bracket (4).
3. Put on two lockwashers (5) and push two screws (6) through holes in fuel pump bracket (3).
4. Put on two washers (7) and using wrenches, screw on and tighten two nuts (8).

GO TO FRAME 6

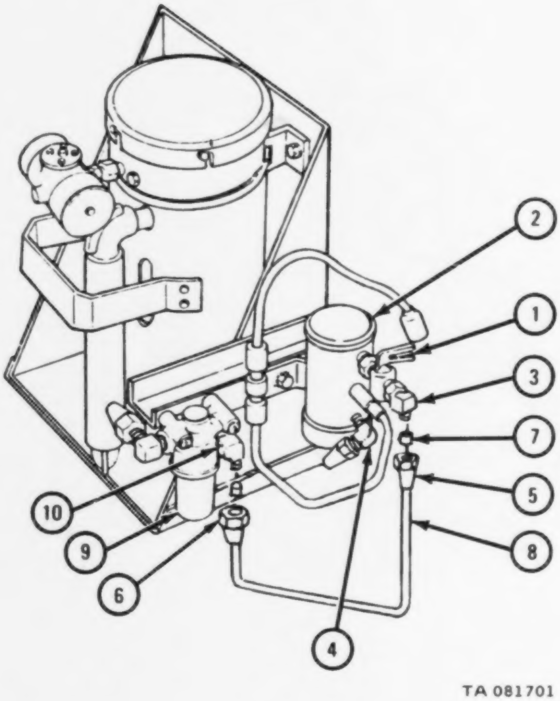


TA 081700

FRAME 6

1. Using wrench, screw in and tighten petcock (1) into fuel pump (2).
2. Using wrenches, screw in and tighten elbow (3) into petcock (1).
3. Using wrench, screw elbow (4) into fuel pump (2).
4. Using wrench, unscrew and take off coupling nuts (5 and 6).
5. Slide coupling nut (5) with sleeve (7) onto end of tubing (8).
6. Using wrench, screw coupling nut (5) with sleeve (7) onto elbow (3).
7. Slide coupling nut (6) with sleeve (9) onto other end of tubing (8).
8. Using wrench, screw on and tighten coupling nut (6) with sleeve (9) onto elbow (10).

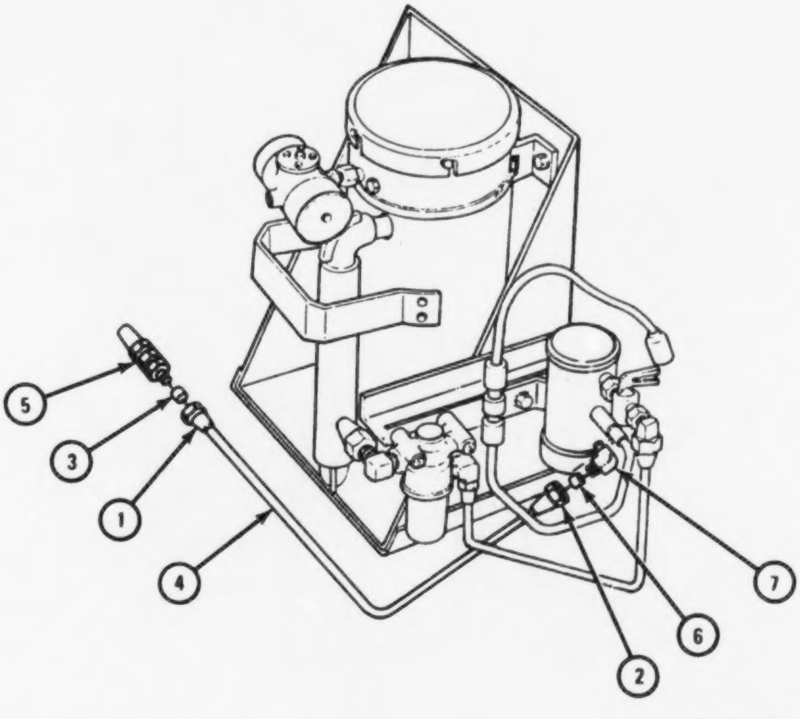
GO TO FRAME 7



FRAME 7

1. Using wrench, unscrew and take off coupling nuts (1 and 2).
2. Slide coupling nut (1) with sleeve (3) onto end of tube (4).
3. Using wrench, screw on and tighten coupling nut (1) with sleeve (3) and tube (4) onto union (5).
4. Slide coupling nut (2) and sleeve (6) onto other end of tube (4).
5. Using wrench, screw on and tighten coupling nut (2) with sleeve (6) and tubing (4) onto elbow (7).

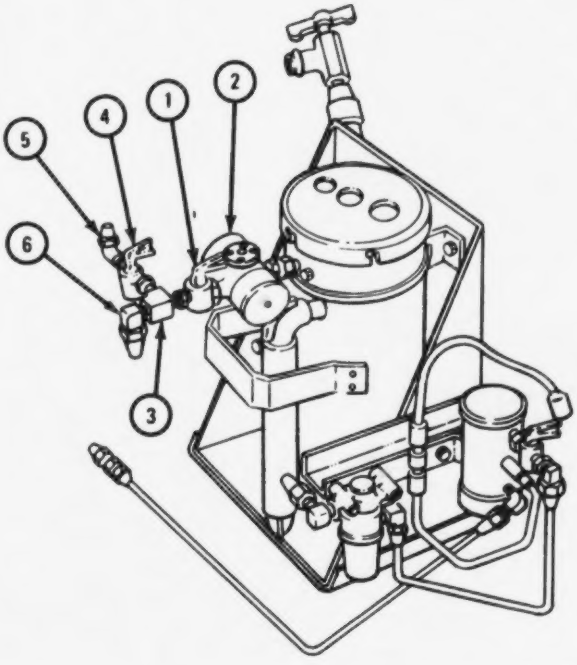
GO TO FRAME 8



FRAME 8

1. Using wrench, screw in and tighten shutoff cock (1) into control valve (2).
2. Using wrench, screw in and tighten tee fitting (3).
3. Using wrench, screw in and tighten shutoff cock (4).
4. Using pipe wrench, screw in and tighten elbow (5).
5. Using wrench, screw in and tighten elbow (6).

GO TO FRAME 9

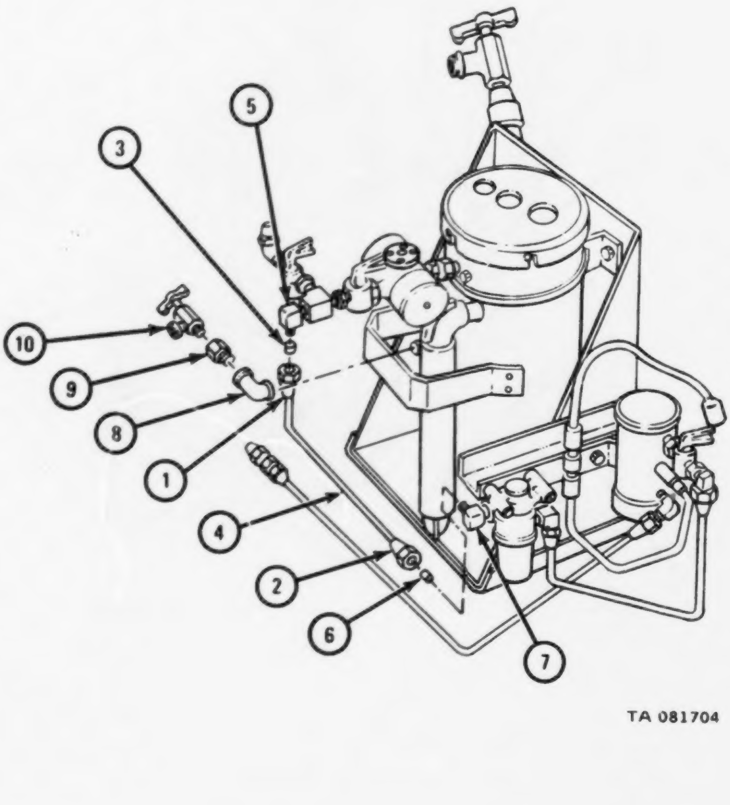


TA 081703

FRAME 9

1. Using wrench, unscrew and take off coupling nuts (1 and 2).
2. Slide coupling nut (1) and sleeve (3) onto end of tube (4).
3. Using wrench, screw in and tighten coupling nut (1) with sleeve (3) and tubing (4) onto elbow (5).
4. Slide coupling nut (2) and sleeve (6) onto other end of tube (4).
5. Using wrench, screw on and tighten coupling nut (2) with sleeve (6) and tubing (4) onto elbow (7).
6. Using pipe wrench, screw in and tighten pipe elbow (8).
7. Using wrench, screw in and tighten pipe bushing (9).
8. Using wrench, screw in and tighten drain cock (10).

END OF TASK



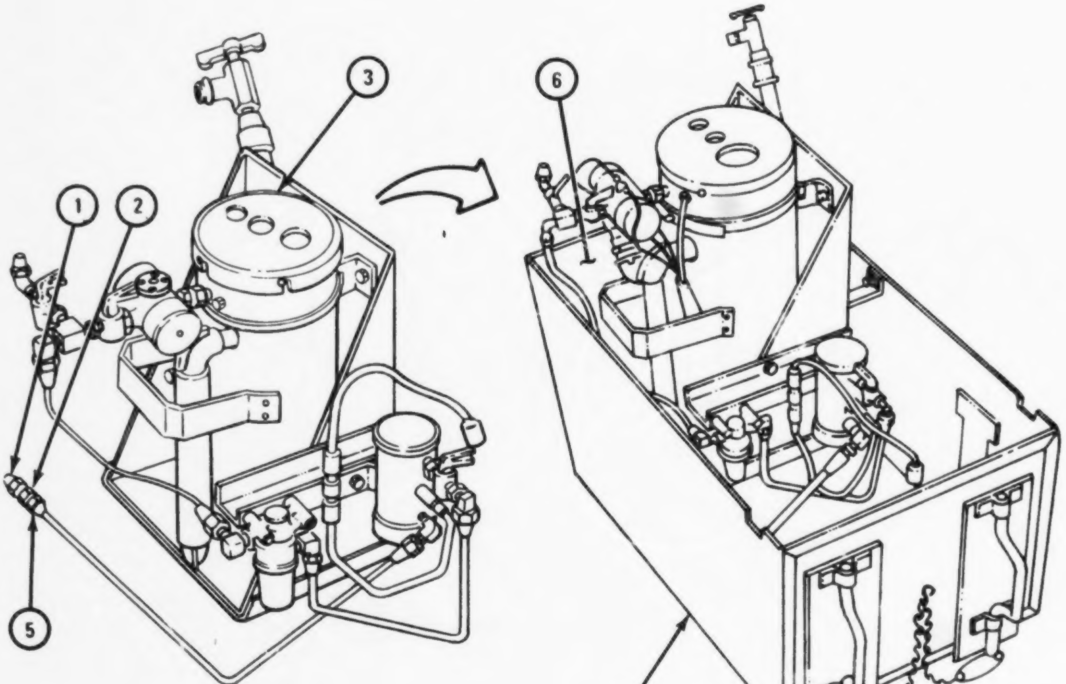
e. Installation.

(1) Heater assembly.

FRAME 1

1. Using wrench, unscrew and take off fitting (1) and nut (2).
2. Put coolant heater (3) in battery box (4). Make sure union (5) goes through 5/8-inch diameter hole drilled in rear panel (6) of battery box (4).

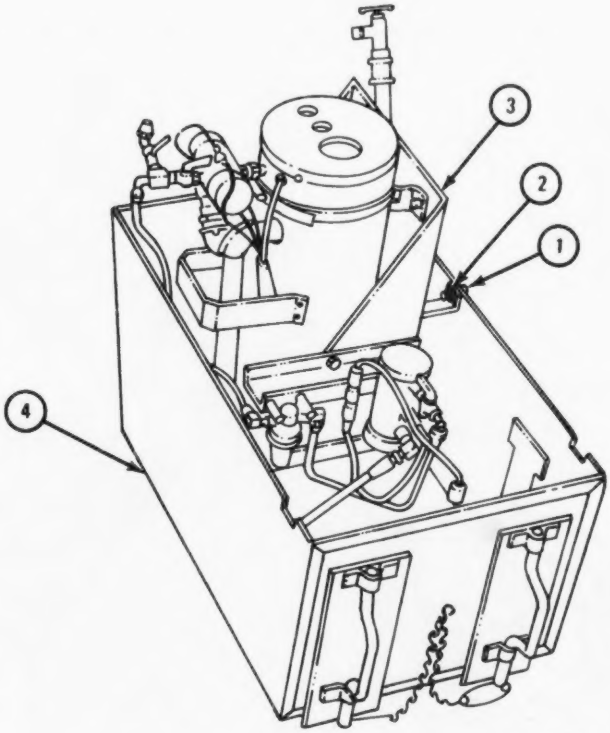
GO TO FRAME 2



FRAME 2

1. Using wrenches, screw in and tighten seven screws (1) and washers and nuts (2) holding heater assembly (3) to battery box (4).

END OF TASK



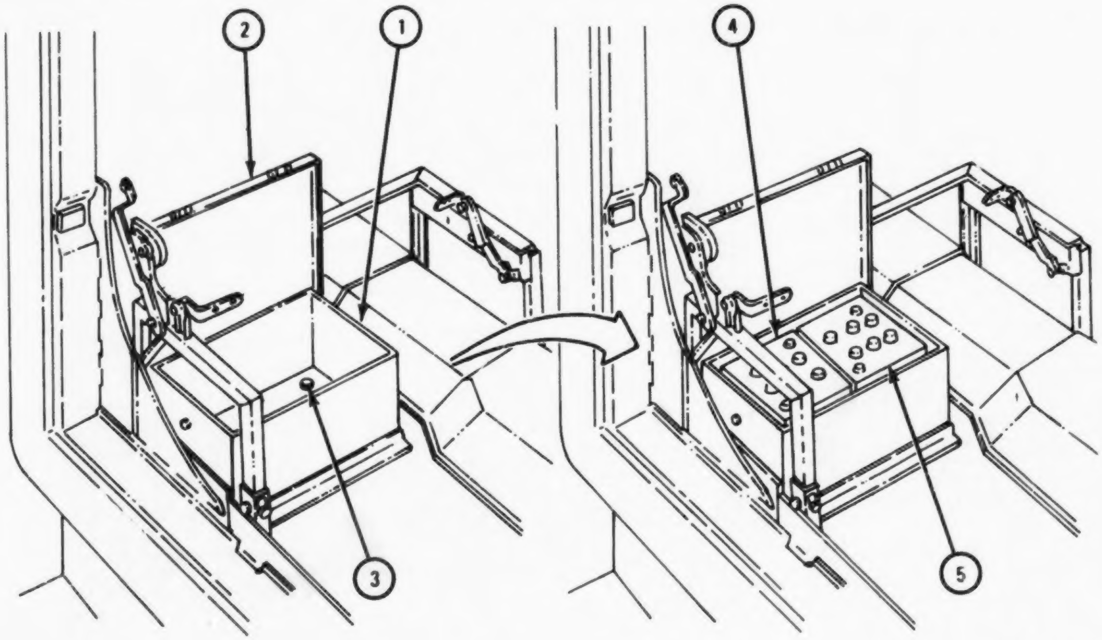
TA 081706

(2) Battery box.

FRAME 1

1. Put battery box (1) in place as shown.
2. Open battery box door (2).
3. Using wrench, screw in and tighten four screws (3).
4. Put batteries (4 and 5) in place.

END OF TASK



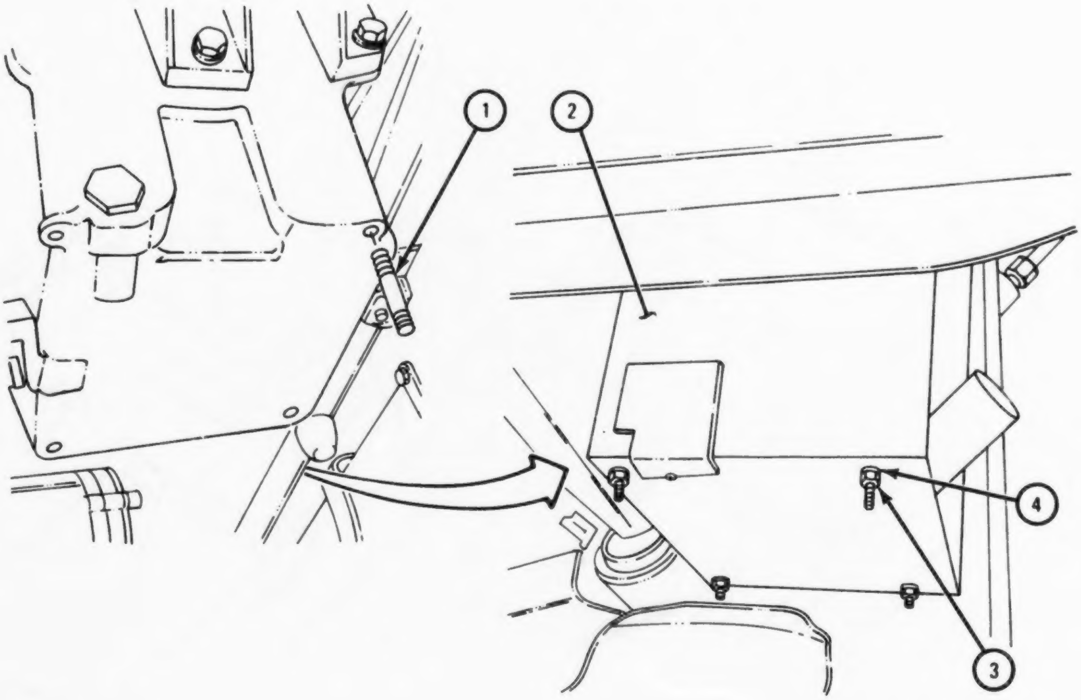
TA 081707

(3) Oil pan shroud.

FRAME 1

1. Using stud replacer, screw in and tighten four studs (1).
2. Put oil pan shroud (2) in place.
3. Using wrench, screw on and tighten four nuts (3) and lockwashers (4).

END OF TASK



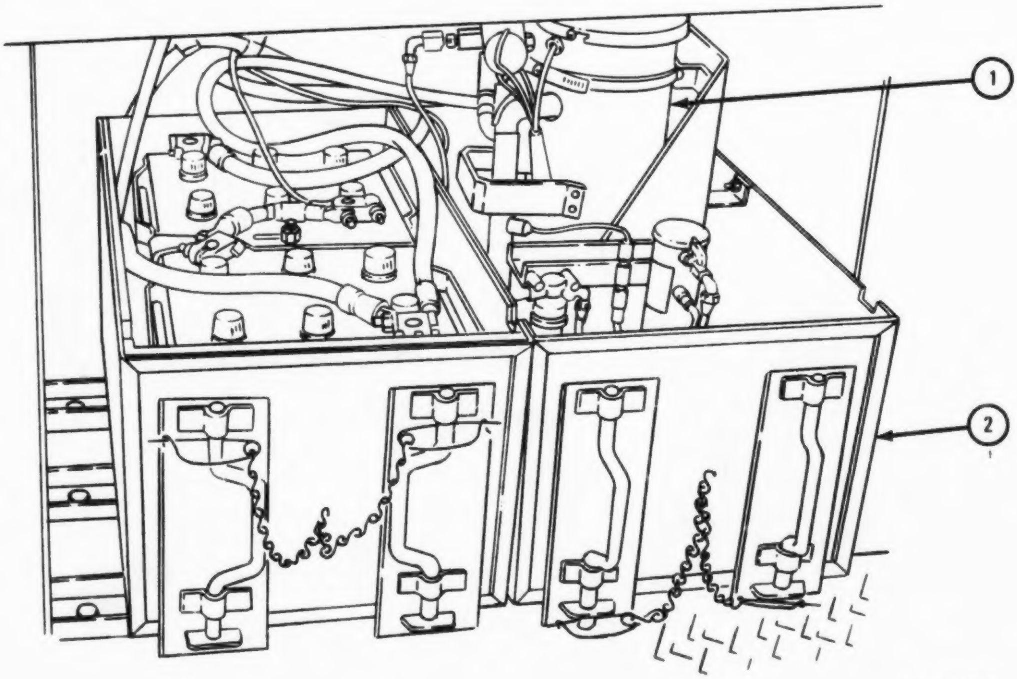
TA 081708

(4) Coolant heater assembly.

FRAME 1

1. Put coolant heater (1) and battery box (2) in place.

END OF TASK



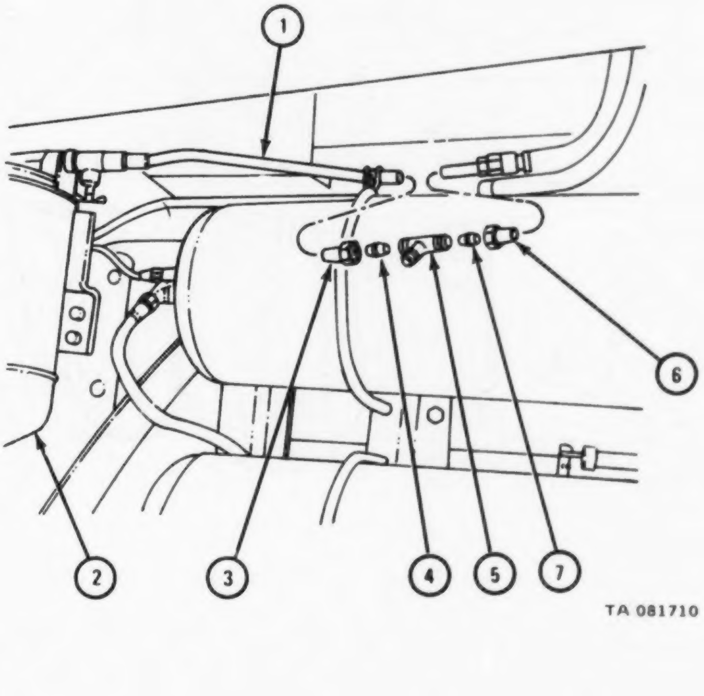
TA 081709

(5) Fuel line.

FRAME 1

1. Using tubing cutter, cut out a 1 1/2-inch piece of fuel line (1), 18 7/16-inches from center of fuel filter (2).
2. Slide coupling nut (3) and sleeve (4) onto one cut end of fuel line (1).
3. Using wrench, screw and tighten coupling nut (3), sleeve (4), and fuel line (1) to tee fitting (5).
4. Slide coupling nut (6) and sleeve (7) onto other cut end of fuel line (1).
5. Using wrench, screw on and tighten coupling nut (6), sleeve (7), and fuel line (1) onto tee fitting (5).

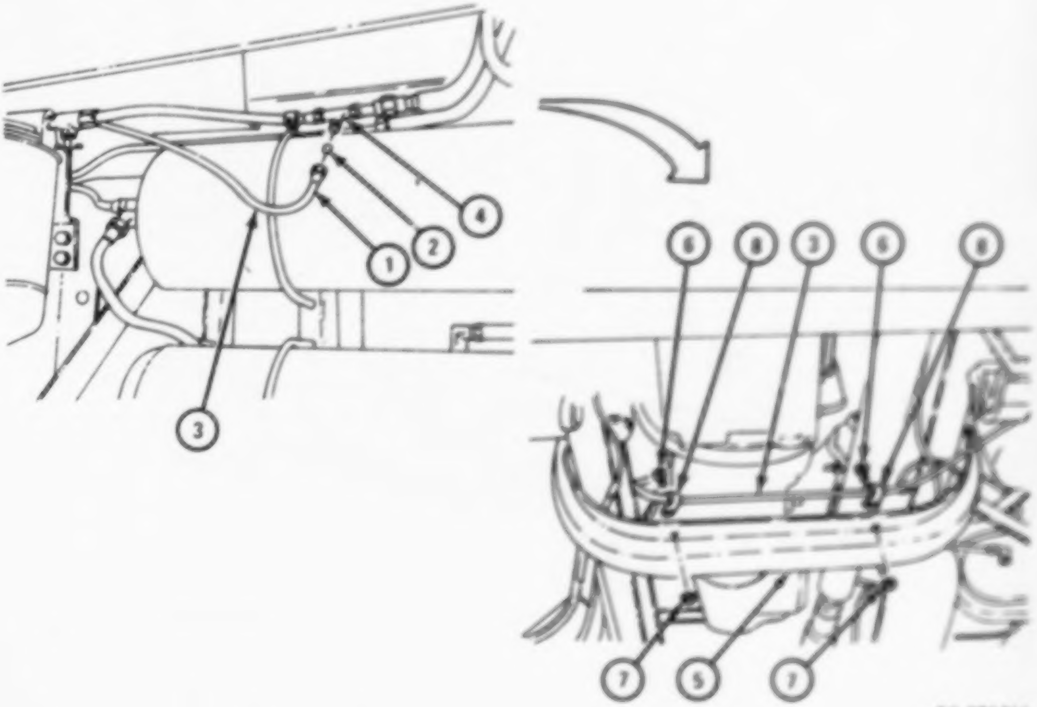
GO TO FRAME 2



FRAME 2

1. Slide coupling nut (1) and sleeve (2) onto tubing (3).
2. Using wrench, screw on and tighten coupling nut (1), sleeve (2), and tubing (3) onto tee fitting (4).
3. Put tubing (3) along crossmember (5).
4. Using wrenches, unscrew and take out two screws (6) and nuts (7).
5. Put two clamps (8) on tube (3).
6. Put two screws (6) through two clamps (8).
7. Using wrenches, screw on and tighten two nuts (7) onto screws (6).

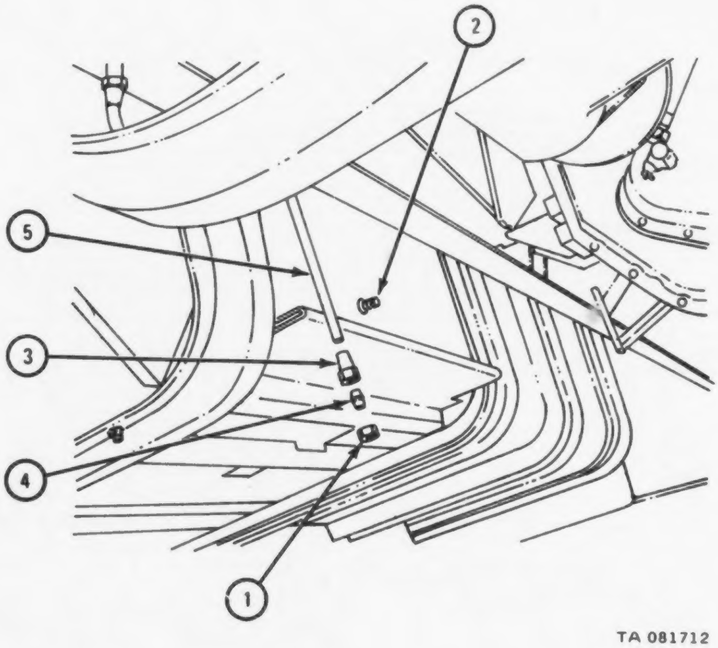
GO TO FRAME 3



FRAME 3

1. Using wrenches, screw on and tighten nut (1) onto fitting (2).
2. Slide coupling nut (3) and sleeve (4) onto tubing (5).
3. Using wrenches, screw on and tighten coupling nut (3), sleeve (4), and tubing (5) onto nut (1).

END OF TASK



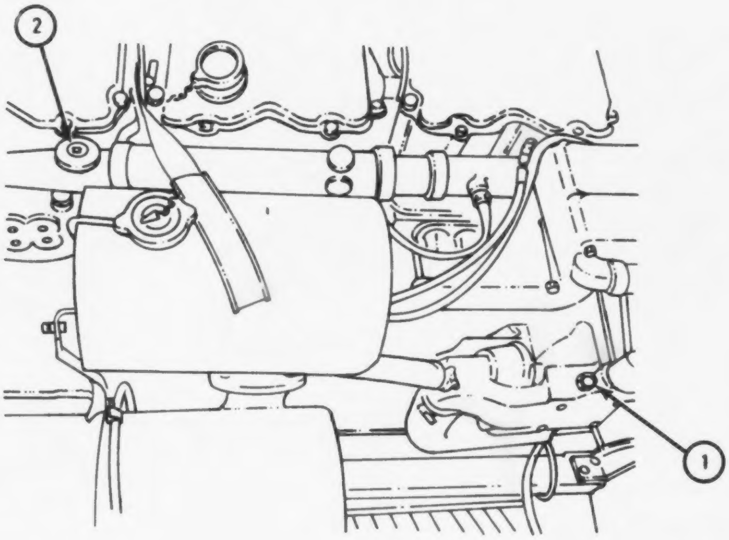
TA 081712

(6) Coolant hose.

FRAME 1

1. Using drive ratchet, unscrew and take out plug (1).
2. Using drive ratchet, unscrew and take out plug (2).

GO TO FRAME 2

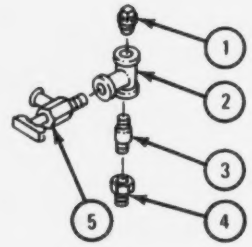


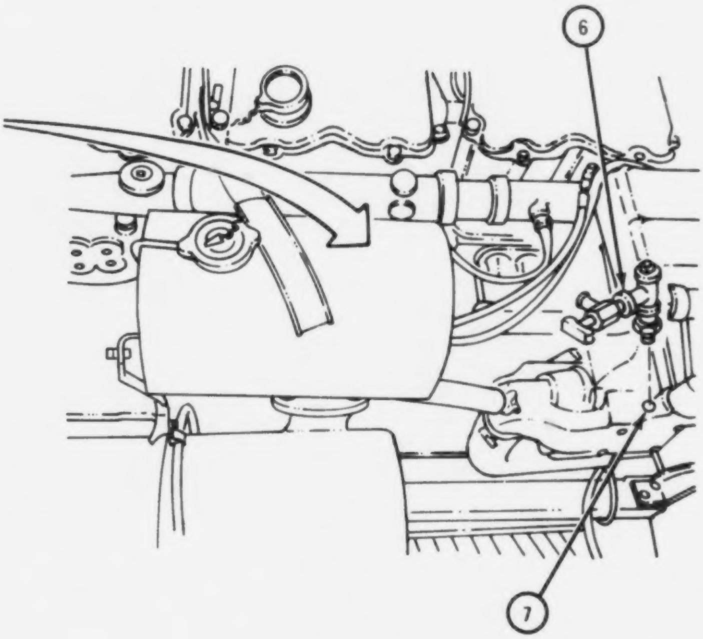
TA 081713

FRAME 2

1. Using wrench, screw in and tighten plug (1) into tee fitting (2).
2. Using pliers, screw in and tighten nipple (3) into tee fitting (2).
3. Using wrench, screw on and tighten bushing (4) onto nipple (3).
4. Using wrench, screw in and tighten petcock (5) into tee fitting (2).
5. Using wrench, screw in and tighten petcock assembly (6) into pipe plug port (7).

GO TO FRAME 3



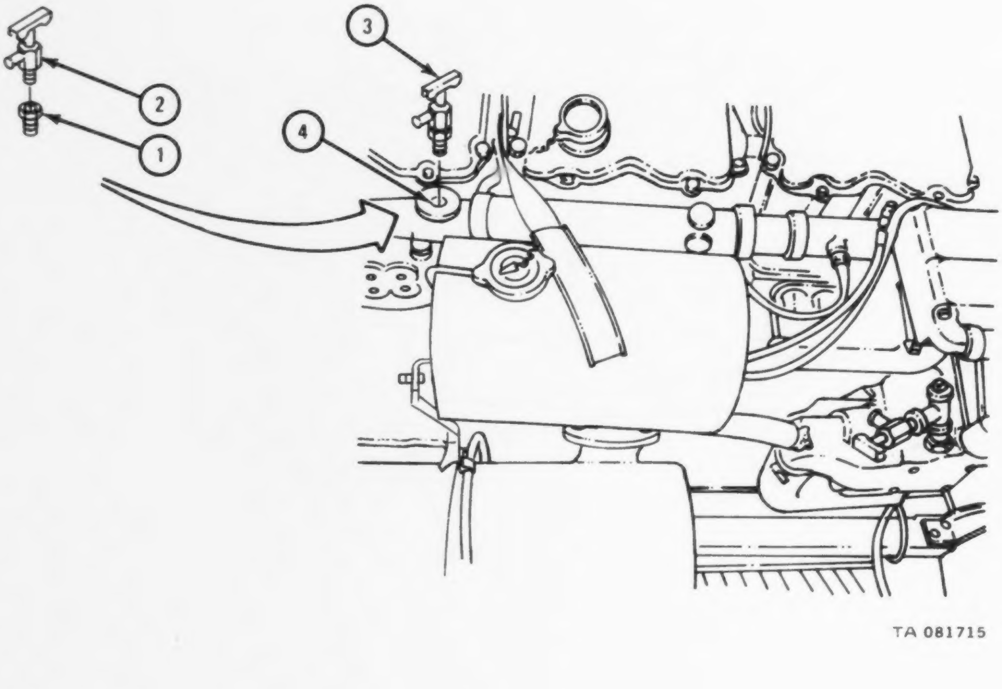


TA 081714

FRAME 3

1. Using wrenches, screw in and tighten bushing (1) onto petcock (2).
2. Using wrench, screw in and tighten petcock assembly (3) into pipe plug port (4).

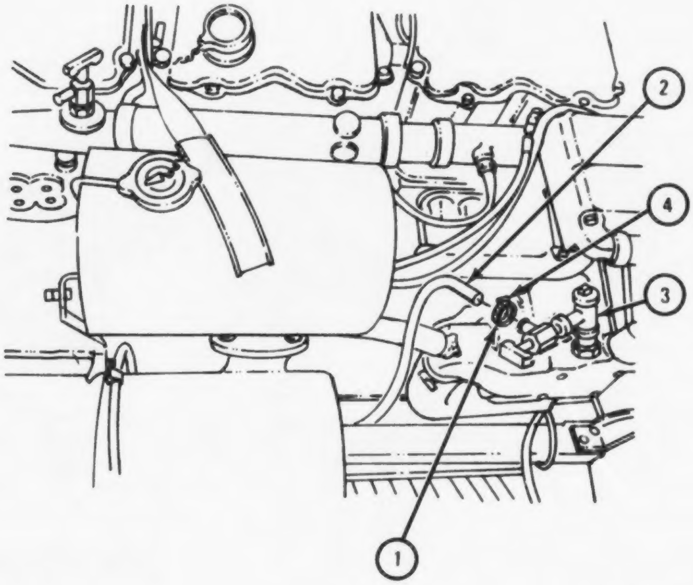
GO TO FRAME 4



FRAME 4

1. Put clamp (1) on hose (2).
2. Push hose (2) onto cock assembly (3).
3. Using screwdriver, screw in and tighten clamp screw (4).

GO TO FRAME 5

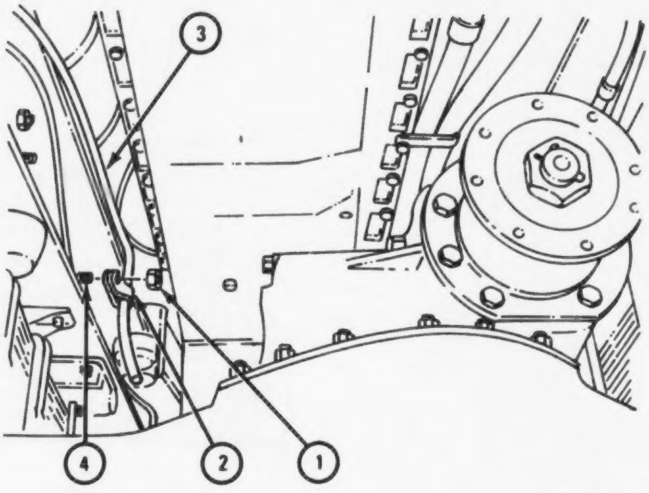


TA 081716

FRAME 5

1. Using wrenches, unscrew and take off nut (1).
2. Put clamp (2) on hose (3).
3. Put clamp (2) on screw (4).
4. Using wrenches, screw on and tighten nut (1).

GO TO FRAME 6

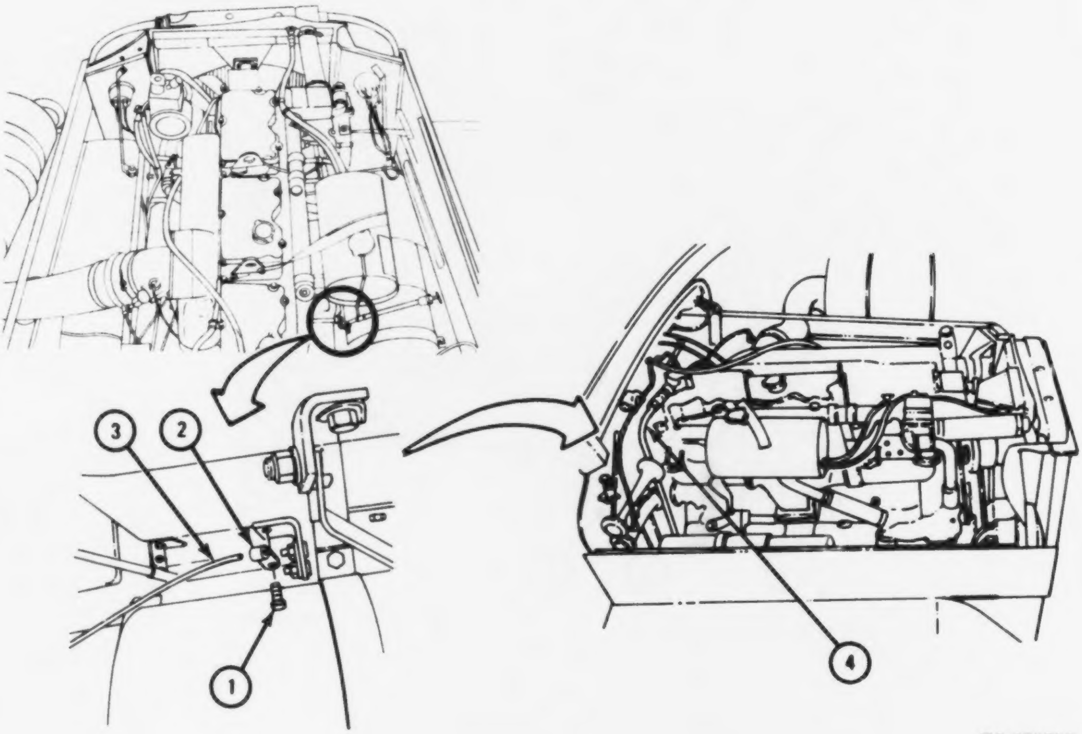


TA 081717

FRAME 6

1. Using wrench, unscrew and take out screw (1).
2. Put clamp (2) on hose (3).
3. Put screw (1) through clamp (2) and using wrench, screw in and tighten screw.
4. Route end of hose (3) into cab tunnel (4).

GO TO FRAME 7

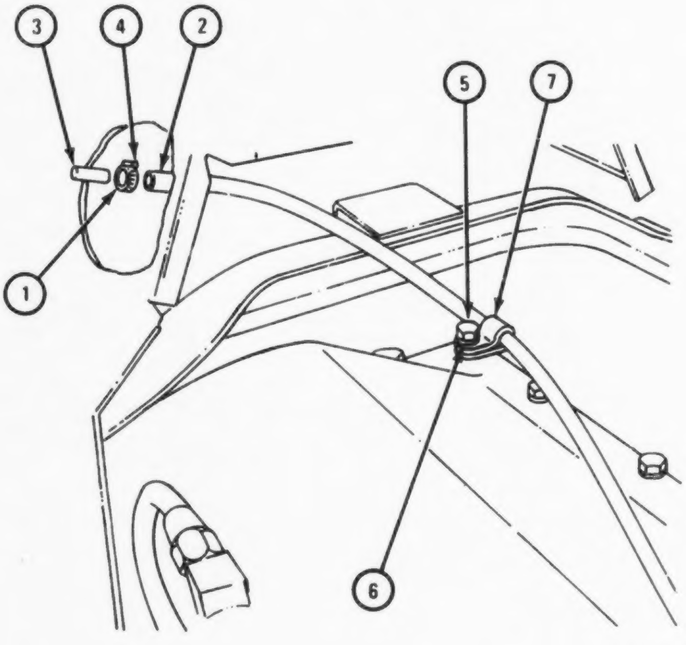


TA 081718

FRAME 7

1. Working in cab, put clamp (1) on end of hose (2).
2. Push end of hose (2) onto tube (3).
3. Using screwdriver, tighten clamp screw (4).
4. Using wrench, unscrew and take out screw (5) with lockwasher (6).
5. Put clamp (7) on hose (2).
6. Put screw (5) with lockwasher (6) through clamp (7).
7. Using wrench, screw in and tighten screw (5) with lockwasher (6).

GO TO FRAME 8

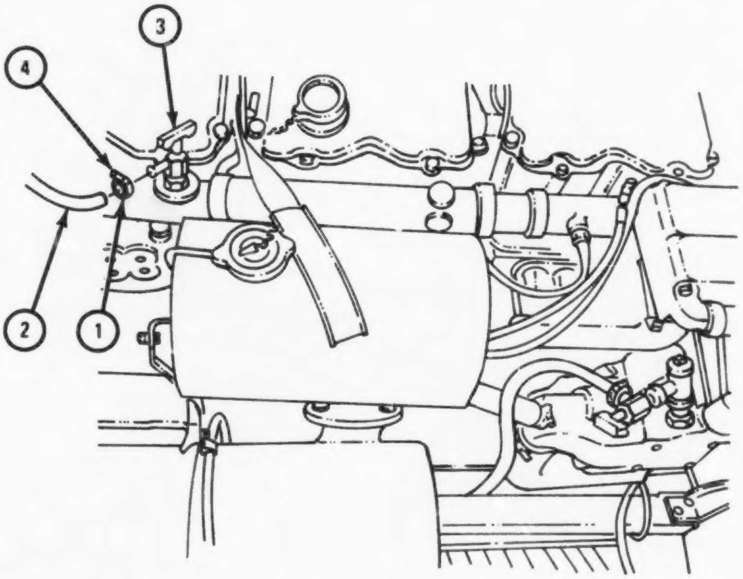


TA 081719

FRAME 8

1. Put clamp (1) on hose (2).
2. Push hose (2) onto petcock (3).
3. Using screwdriver, tighten clamp screw (4).

GO TO FRAME 9

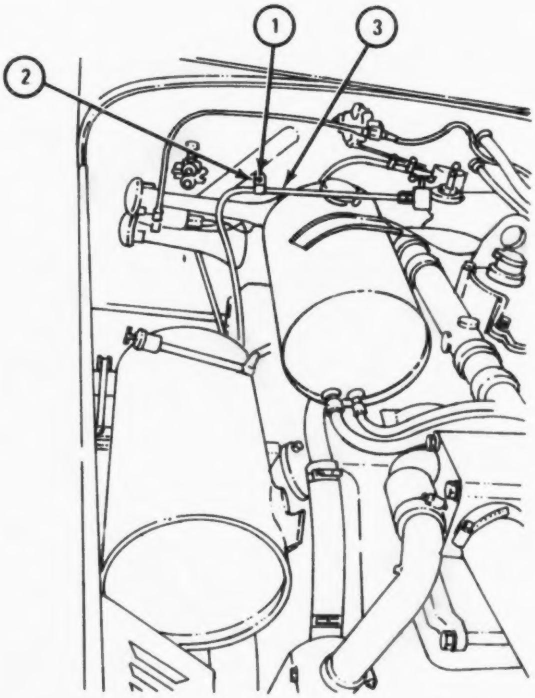


TA 081720

FRAME 9

1. Using wrench, unscrew and take out screw (1).
2. Put clamp (2) on hose (3).
3. Put screw (1) through clamp (2).
4. Using wrench, screw in and tighten screw (1).

GO TO FRAME 10

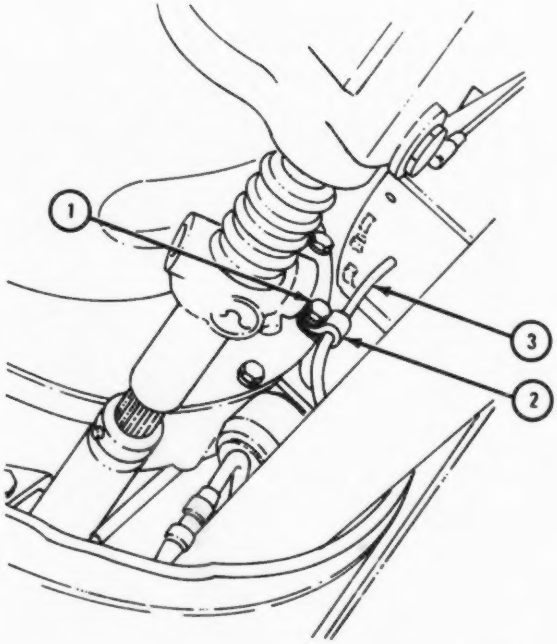


TA 081721

FRAME 10

1. Using wrench, unscrew and take out screw and lockwasher (1).
2. Put clamp (2) on hose (3).
3. Put screw with lockwasher (1) through clamp (2).
4. Using wrench, screw in and tighten screw and lockwasher (1).

GO TO FRAME 11

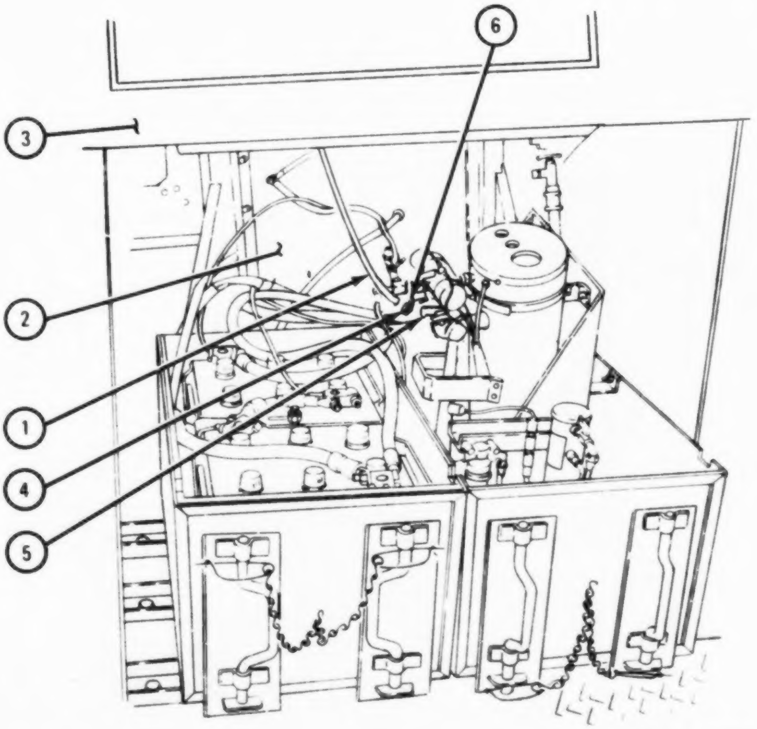


TA 081722

FRAME 11

1. Pull out hose (1) from between frame (2) and cab (3).
2. Put clamp (4) on hose (1).
3. Push hose (1) onto petcock (5).
4. Using screwdriver, tighten clamp screw (6).

GO TO FRAME 12

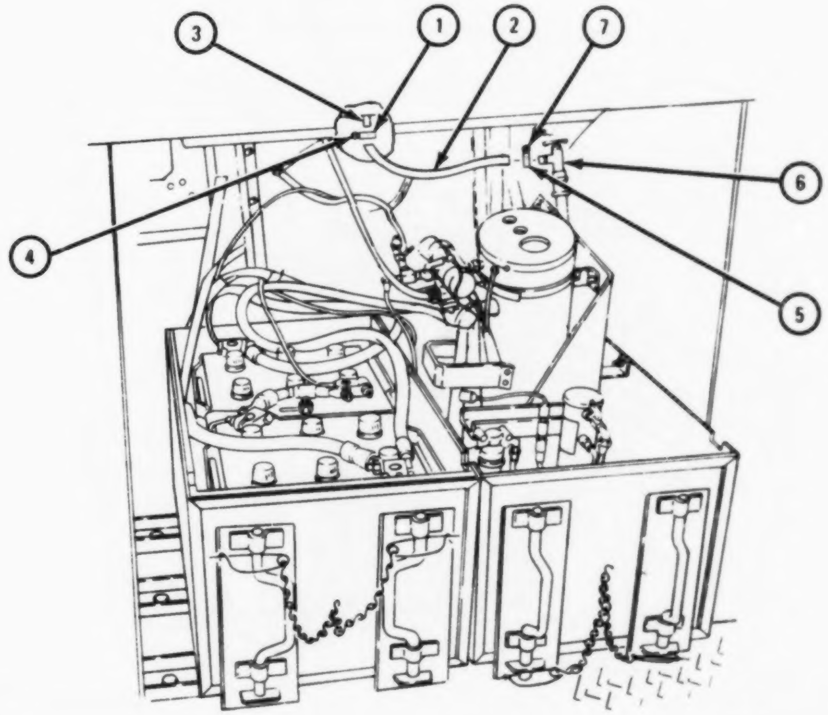


TA 081723

FRAME 12

1. Put clamp (1) on hose (2).
2. Push hose (2) onto tube (3).
3. Using screwdriver, tighten clamp screw (4).
4. Put clamp (5) on hose (2).
5. Push hose (2) onto petcock (6).
6. Using screwdriver, tighten clamp screw (7).

END OF TASK



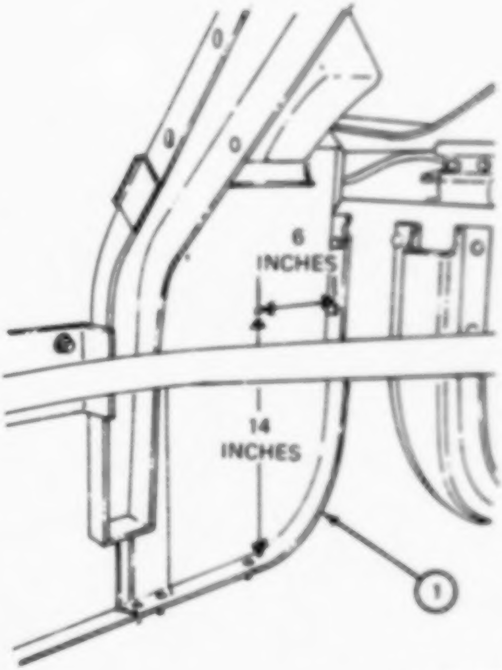
TA 081724

(7) Exhaust tubing.

FRAME 1

1. Using drill and 1.65-inch hole saw, cut hole in battery support panel (1) six inches from inside edge and 14 inches from bottom.

GO TO FRAME 2

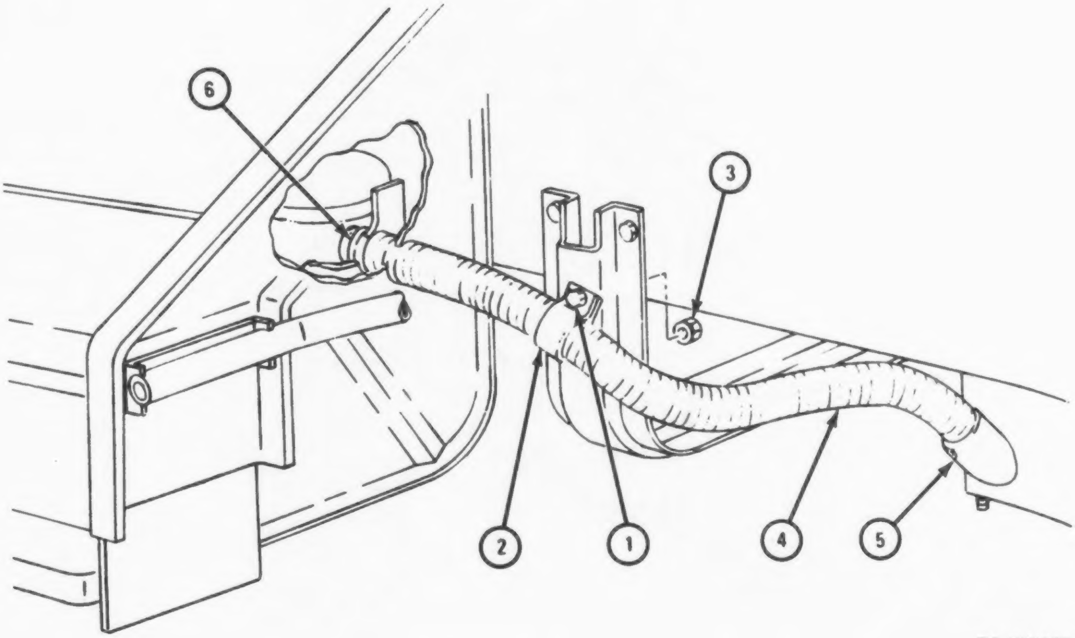


TA 081725

FRAME 2

1. Put screw (1) through clamp (2).
2. Using wrenches, screw on but do not tighten nut (3).
3. Put exhaust tube (4) through clamp (2).
4. Put one end of exhaust tube (4) into oil pan inlet (5) and put other end into coolant heater exhaust extension (6).

GO TO FRAME 3

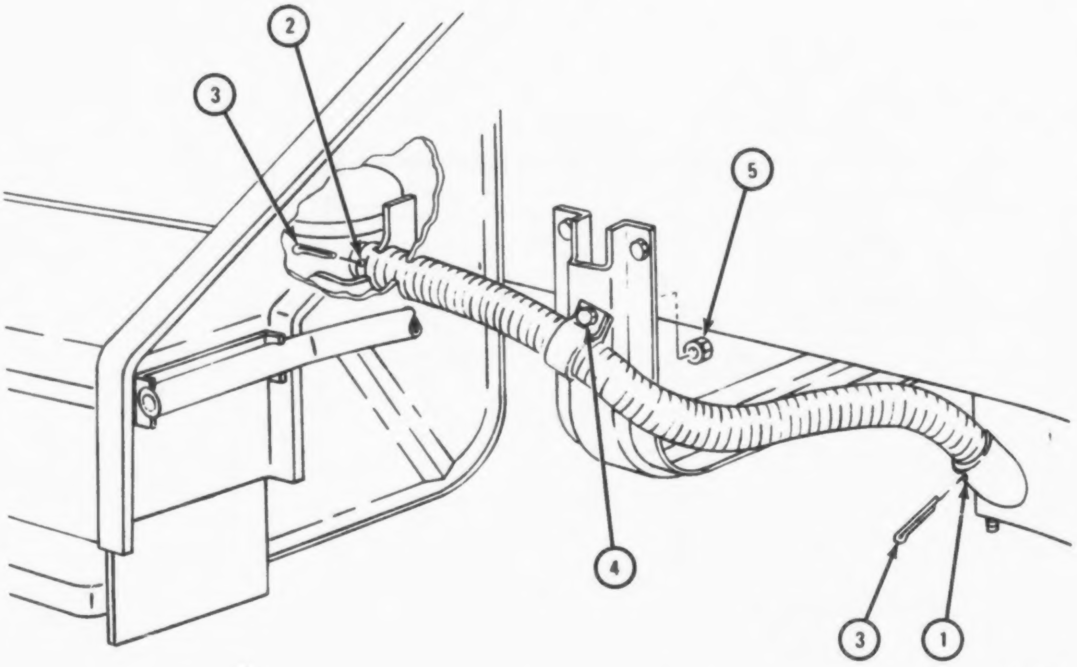


TA 081726

FRAME 3

1. Using drill and 5/32-inch bit, drill holes in oil pan inlet (1) and coolant heater exhaust extension (2).
2. Put in two cotter pins (3) and using pliers, bend open ends of cotter pins.
3. Using wrenches, screw in and tighten screw (4) and nut (5).

END OF TASK



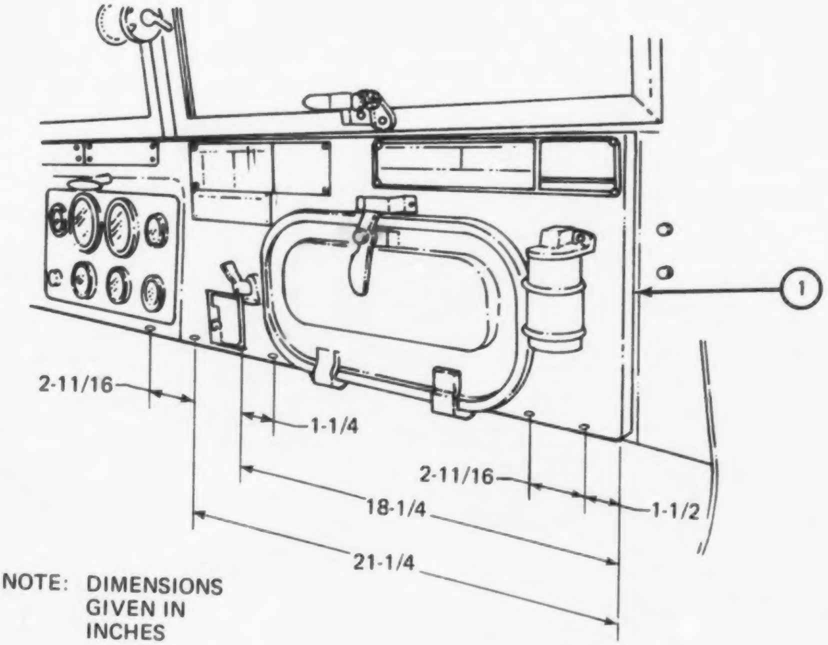
TA 081727

(8) Control box.

FRAME 1

1. Using drill and 3/8-inch drill bit, drill six holes along bottom lip of instrument panel (1) as shown.

GO TO FRAME 2

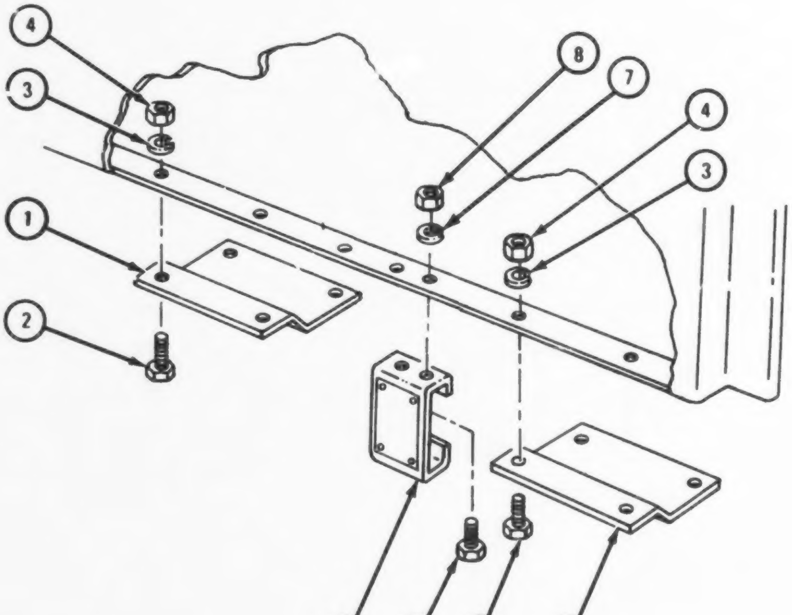

1
2-11/16
1-1/4
2-11/16
1-1/2
18-1/4
21-1/4
NOTE: DIMENSIONS GIVEN IN INCHES

TA 081728

FRAME 2

1. Put two brackets (1) in place, alining holes.
2. Using wrenches, screw in and tighten four screws (2), lockwashers (3), and nuts (4).
3. Put bracket (5) in place, alining holes.
4. Using wrenches, screw in and tighten two screws (6), lockwashers (7), and nuts (8).

GO TO FRAME 3

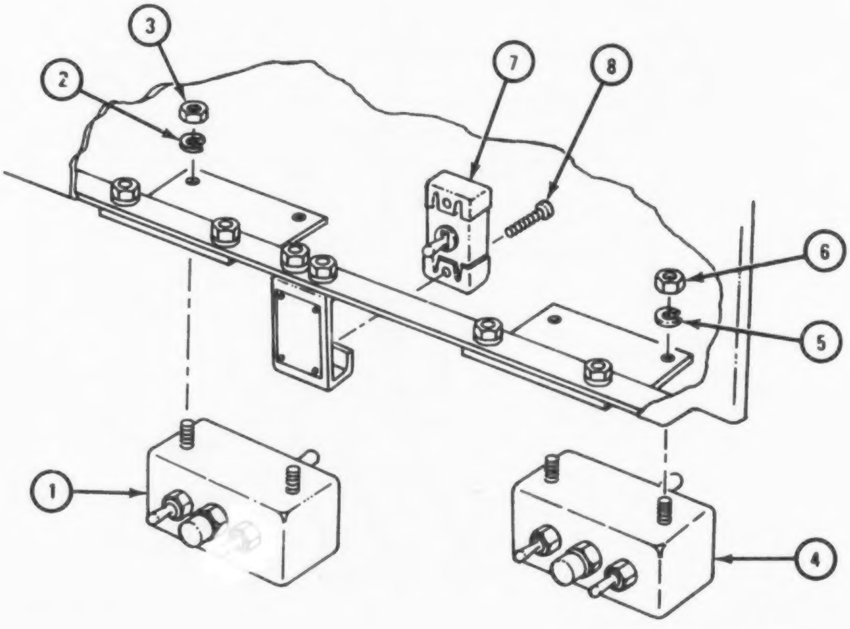


TA 081729

FRAME 3

1. Put personnel heater control box (1) in place.
2. Using wrench, screw on and tighten two lockwashers (2) and nuts (3).
3. Put coolant heater control box (4) in place.
4. Using wrench, screw on and tighten two lockwashers (5) and nuts (6).
5. Put emergency switch (7) in place.
6. Using wrench, screw in and tighten two screws (8).

END OF TASK

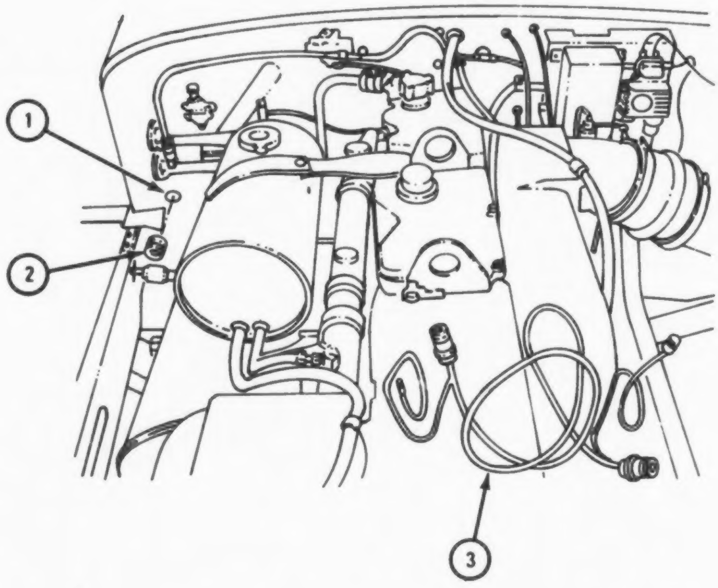


(9) Electrical wiring.

FRAME 1

1. Using hammer and punch, tap out knockout plug (1).
2. Put grommet (2) in place.
3. Push end of wiring harness (3) marked CONTROL BOX through grommet (2).

GO TO FRAME 2

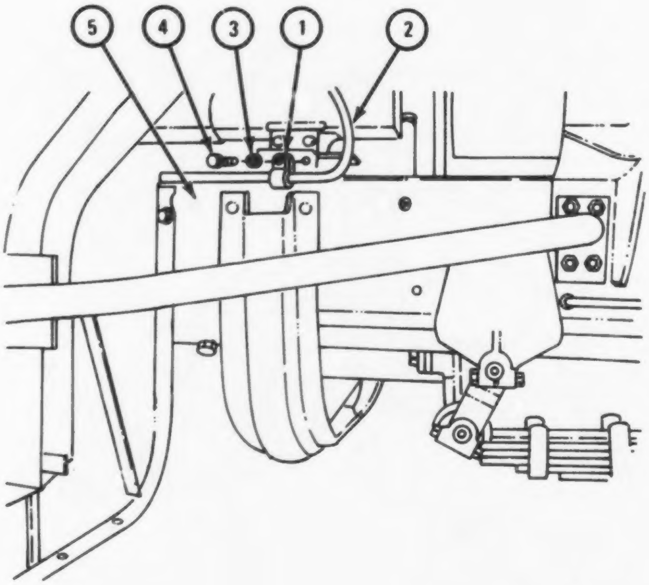


TA 081731

FRAME 2

1. Put clamp (1) on harness (2).
2. Put lockwasher (3) on screw (4) and put screw through clamp (1).
3. Using wrench, screw in and tighten screw (4) and lockwasher (3).
4. Route harness (2) along frame (5) toward rear of truck.

GO TO FRAME 3

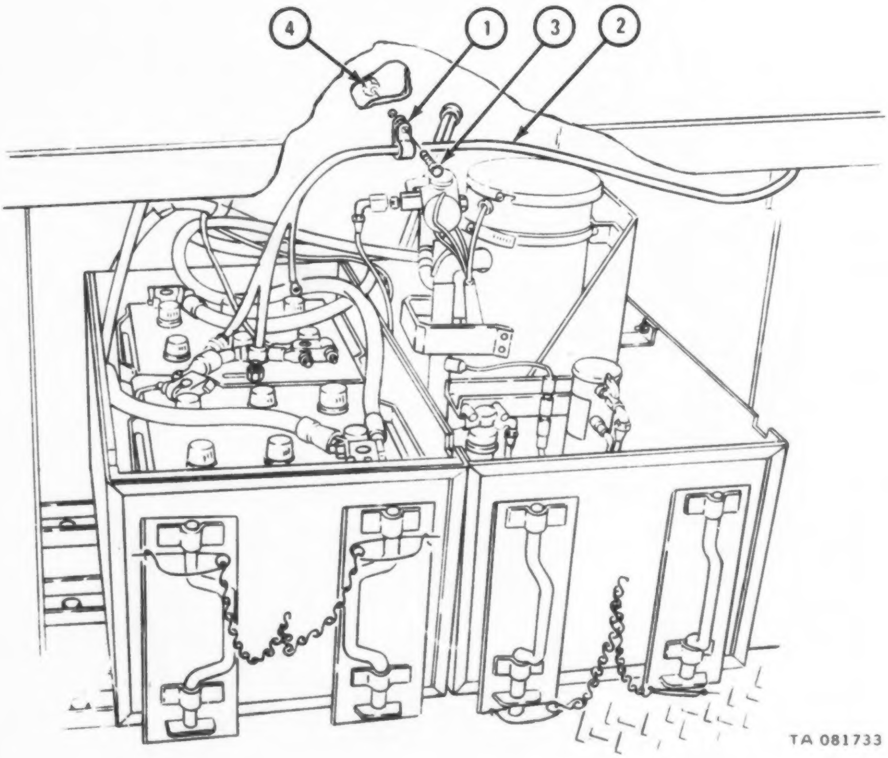


TA 081732

FRAME 3

1. Put clamp (1) on harness (2).
2. Put screw (3) through clamp (1).
3. Using wrenches, screw in and tighten screw (3) and nut (4).

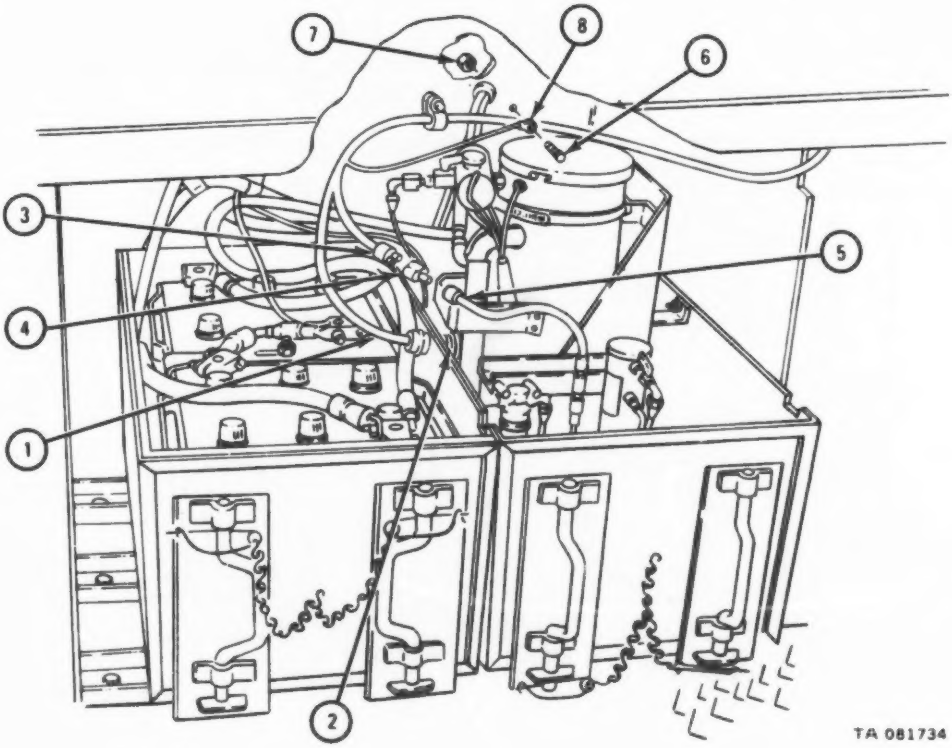
GO TO FRAME 4



FRAME 4

1. Plug end of harness (1) into electric outlet (2).
2. Plug lead (3) into Y-connector (4).
3. Plug fuel pump lead (5) into Y-connector (4).
4. Using wrenches, unscrew and take out screw (6) and nut (7).
5. Put ground lead (8) on screw (6).
6. Using wrenches, screw in and tighten screw (6), ground lead (8), and nut (7).

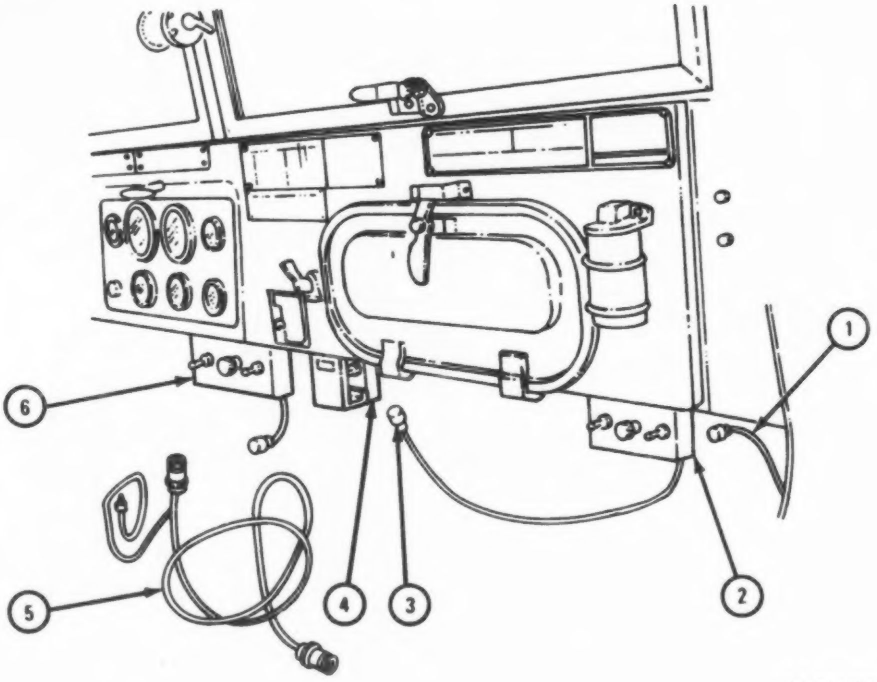
GO TO FRAME 5



FRAME 5

1. Plug end of harness (1) into control box (2).
2. Plug control box lead (3) into emergency switch (4).
3. Plug 18-inch piece of lead (5) into personnel heater control box (6).
4. Plug three inch piece of lead (5) into emergency switch (4).

GO TO FRAME 6

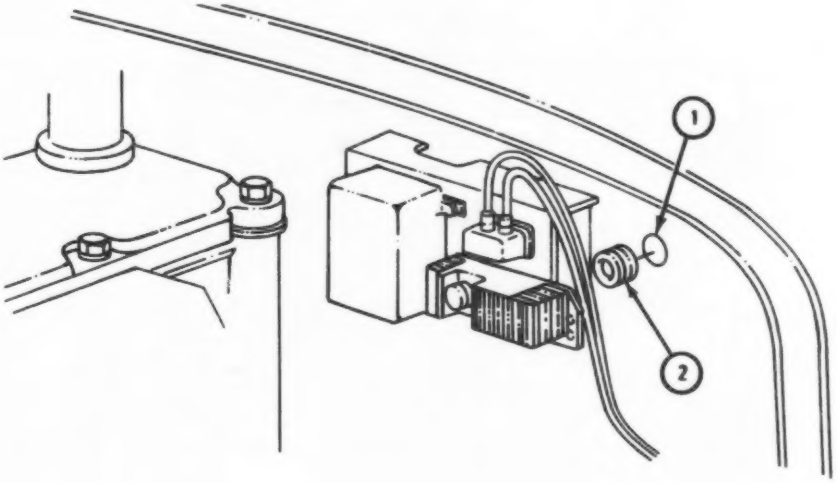


TA 081735

FRAME 6

1. Using punch and hammer, tap out knockout plug (1).
2. Put in grommet (2).

GO TO FRAME 7

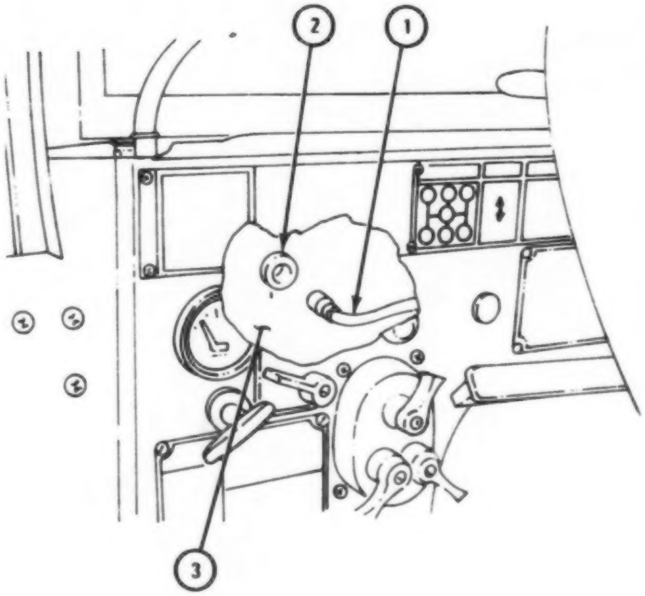


TA 081736

FRAME 7

1. Put end of lead (1) through grommet (2) in firewall (3).

GO TO FRAME 8

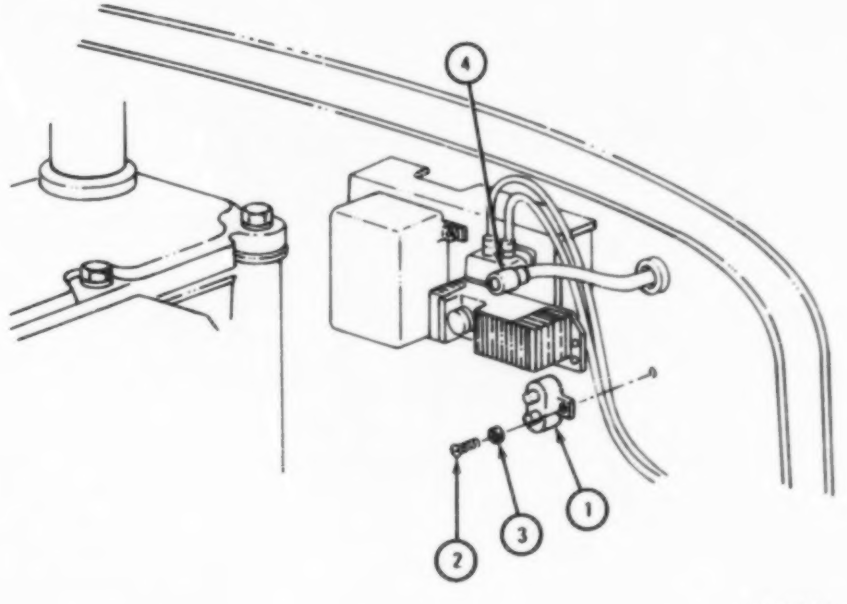


TA 081737

FRAME 8

1. Put circuit breaker (1) in place.
2. Using wrench, screw in and tighten two screws (2) and lockwashers (3).
3. Plug lead (4) into circuit breaker (1).

GO TO FRAME 9

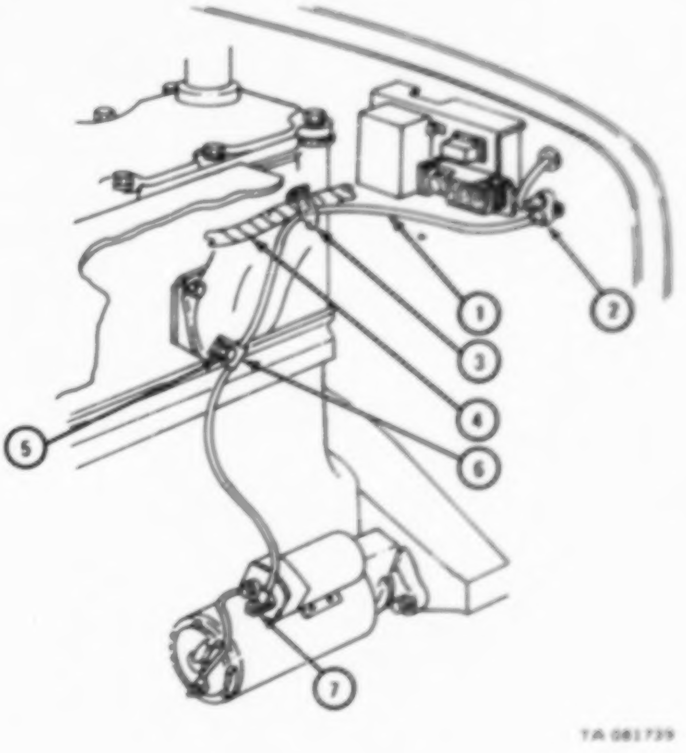


TA 081738

FRAME 9

1. Plug end of lead (1) into circuit breaker (2).
2. Put strap (3) around lead (1) and front wiring harness (4) and tighten strap.
3. Using wrench, unscrew and take out screw and lockwasher (5) and put lead (1) into clamp (6).
4. Using wrench, screw in and tighten screw and lockwasher (5).
5. Using wrench, unscrew and take off nut (7).
6. Put end of lead (1) in place.
7. Using wrench, screw on and tighten nut (7).

END OF TASK

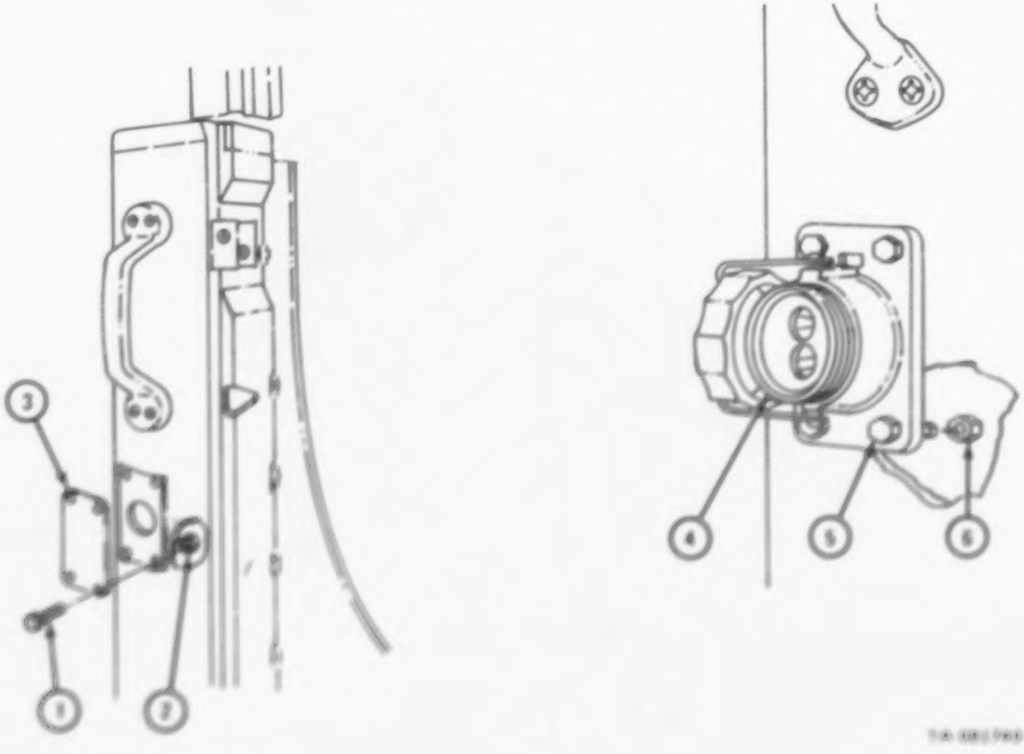


(10) Slave receptacle and battery cable.

FRAME 1

1. Using wrenches, unscrew and take out four screws (1) and nuts (2).
2. Take off cover plate (3).
3. Put slave receptacle (4) in place, alining mounting holes.
4. Using wrenches, screw in and tighten four screws (5) and nuts (6).

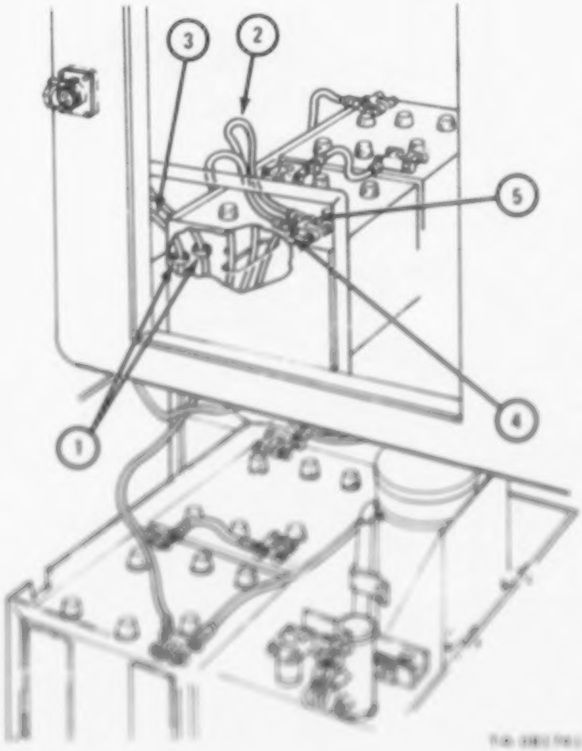
GO TO FRAME 2



FRAME 2

1. Put two grommets (1) in place.
2. Put battery cables (2 and 3) through grommets (1).
3. Put 55-inch battery cable (2) through hole in floor as shown.
4. Using wrenches, unscrew and take out screw (4) and nut (5).
5. Put end of battery cable (2) on screw (4).
6. Using wrenches, screw in and tighten screw (4) and nut (5).

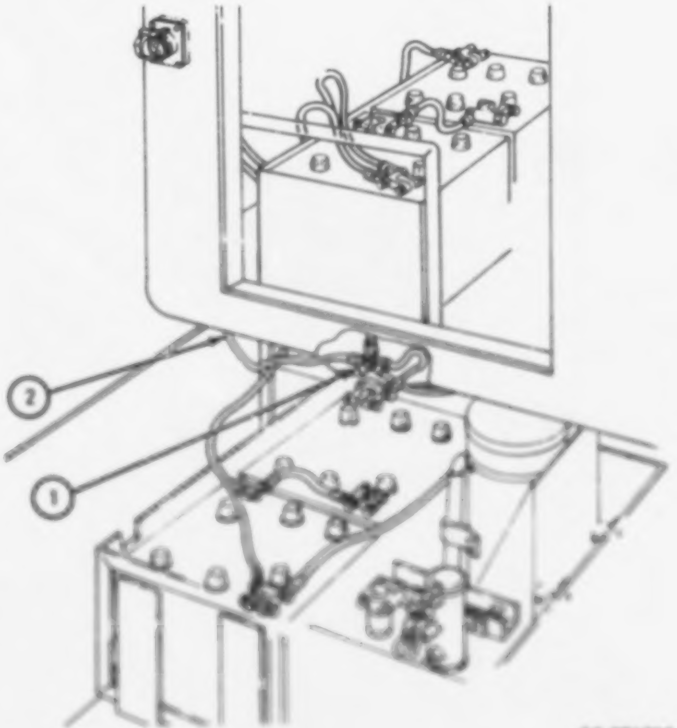
GO TO FRAME 3



FRAME 3

1. Using wrench, unscrew and take off nut (1).
2. Put slave cable (2) in place.
3. Using wrench, screw on and tighten nut (1).

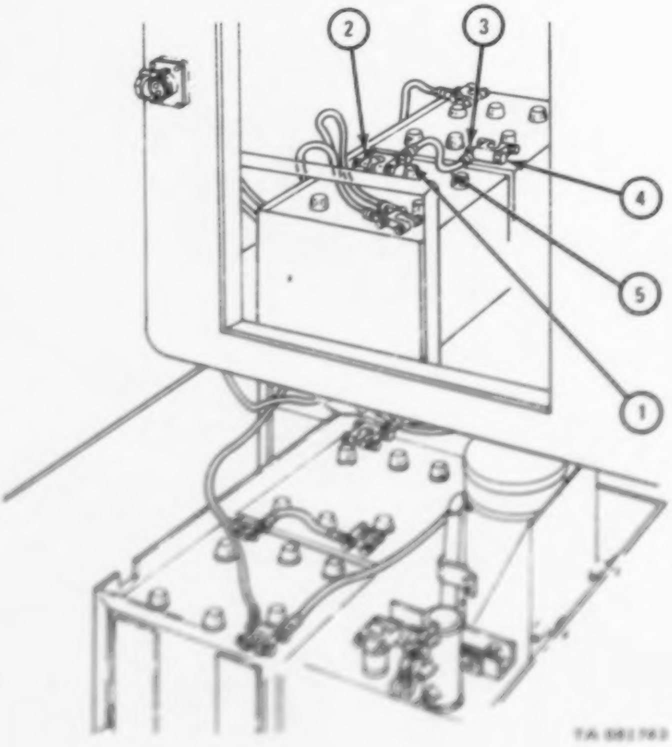
GO TO FRAME 4



FRAME 4

1. Using wrenches, unscrew and take out screw (1) and nut (2).
2. Using wrenches, unscrew and take out screw (3) and nut (4).
3. Put one end of original battery cable (5) on screw (1) and other end on screw (3).
4. Using wrenches, screw in and tighten screw (1) and nut (2).
5. Using wrenches, screw in and tighten screw (3) and nut (4).

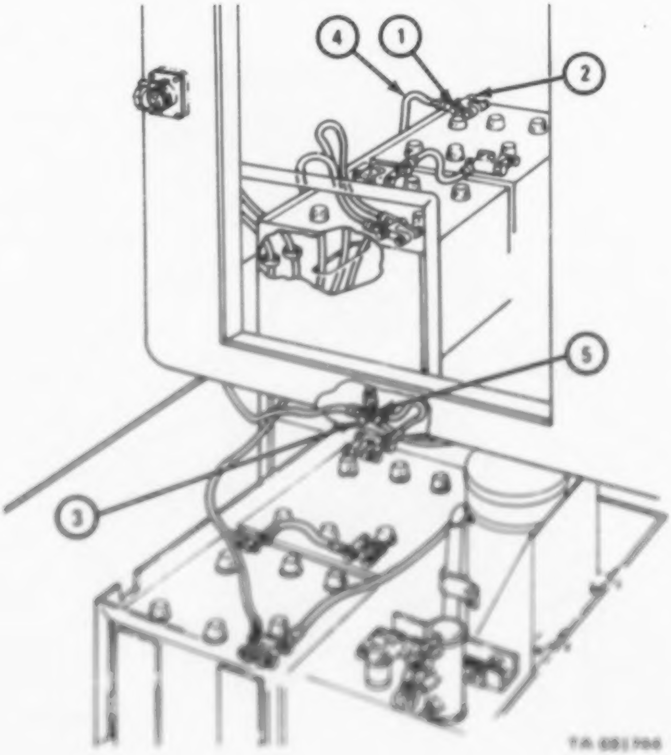
GO TO FRAME 5



FRAME 5

1. Using wrenches, unscrew and take out screw (1) and nut (2).
2. Using wrench, unscrew and take off nut (3).
3. Put one end of new cable (4) on screw (1).
4. Using wrenches, screw in and tighten screw (1) and nut (2).
5. Put other end of new cable (4) in place at ground point (5).
6. Using wrench, screw on and tighten nut (3).

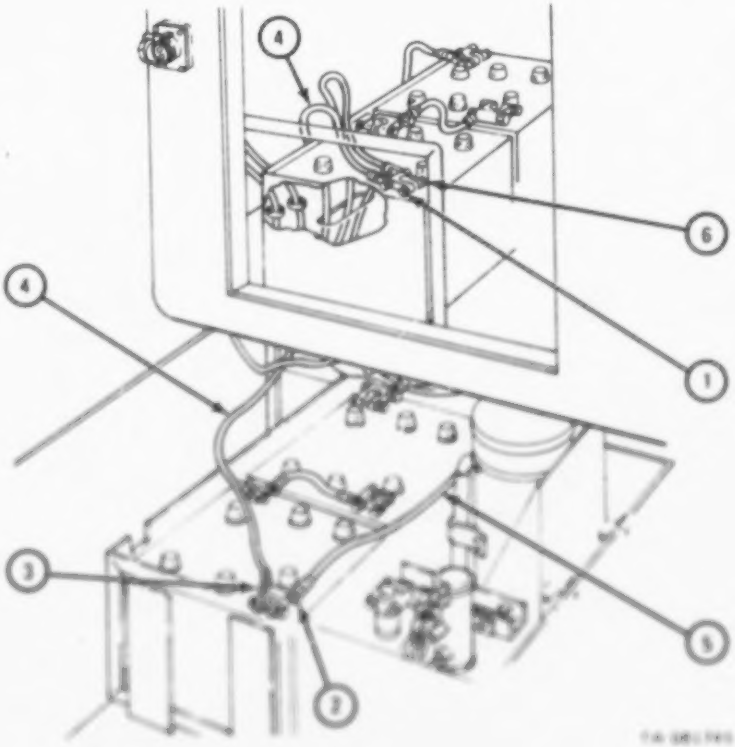
GO TO FRAME 6



FRAME 6

1. Using wrenches, unscrew and take off nut (1).
2. Using wrenches, unscrew and take off screw (2) and nut (3).
3. Put one end of new cable (4) in place on screw (2).
4. Put end of positive starter cable (5) on screw (2).
5. Using wrenches, screw on and tighten screw (2) and nut (3).
6. Put other end of new cable (4) in place on terminal (6).
7. Using wrenches, screw on and tighten nut (1).

END OF TASK

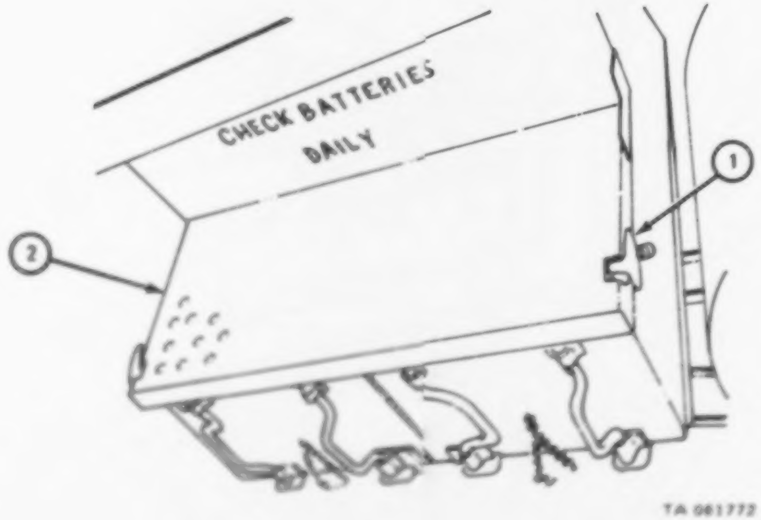


f. Preparation for Installation of Running Board Insulation.

FRAME 1

1. Unlatch two latches (1).
2. Take off running board assembly (2).

GO TO FRAME 2


CHECK BATTERIES
DAILY
1
2
TA 081772

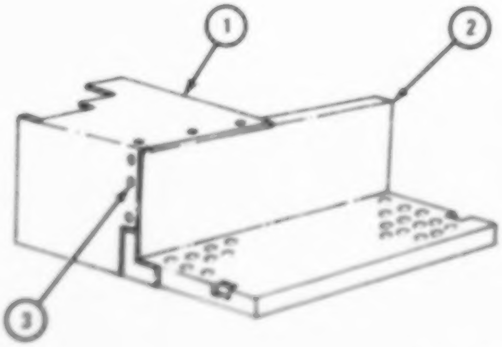
FRAME 2

1. Put battery cover (1) in place on running board assembly (2) as shown, with 3/16-inch of battery cover hanging over edge of running board assembly.
2. Using scribe, mark places of screw holes (3). Take off battery cover (1).
3. Using hammer and center punch, punch six places marked in step 2.
4. Using electric drill with a 5/16-inch drill bit, drill six holes in places.
5. Using wrench, screw in and tighten six screws to hold battery cover (1) onto running board assembly (2).

NOTE

> No other changes to truck are needed. Installation can be done by following replacement procedure for running board installation. Refer to TM 9-2320-260-20.

END OF TASK



TA 081773

g. Mounting of Instruction and Wiring Plates.

FRAME 1

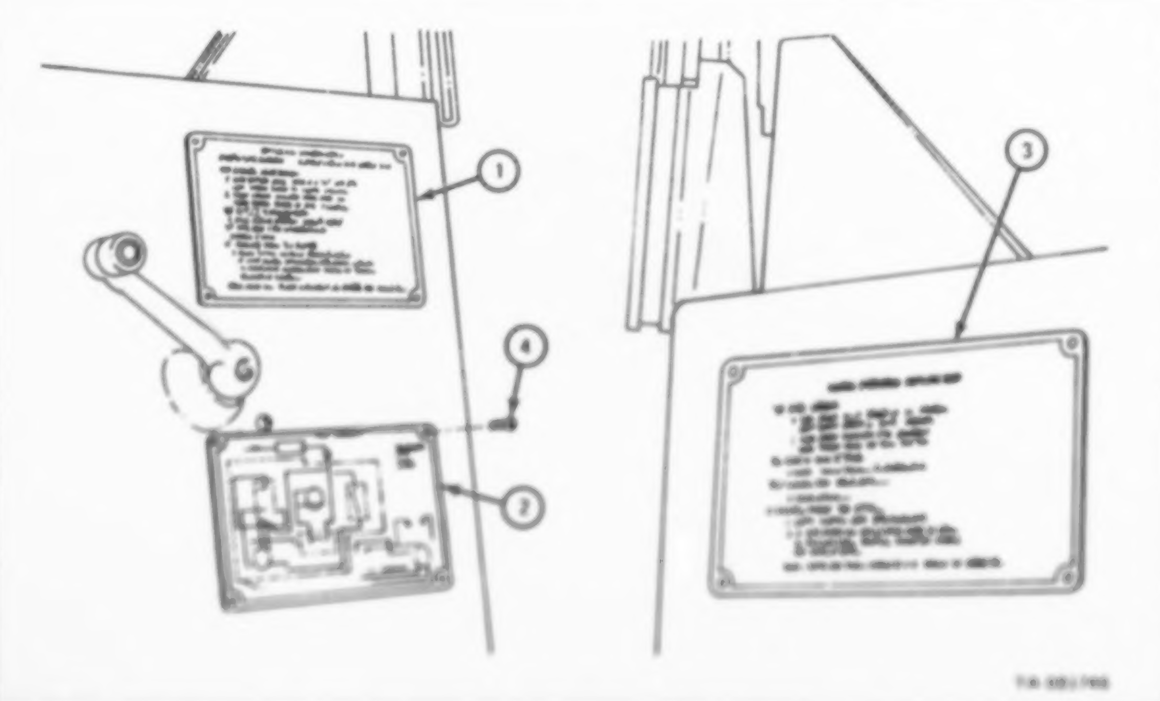
1. Put plate (1) in place.
2. Using scribe, mark hole in each corner of plate (1).
3. Take away plate (1).
4. Using drill and 9/64-inch bit, drill four holes marked in step 2.
5. Do steps 1 through 4 for plates (2 and 3).
6. Put plates (1, 2, and 3) in place.
7. Using phillips screwdriver, screw in and tighten 12 screws (4).

NOTE

Follow-on Maintenance Action Required:

1. Install hood and side panel covers. Refer to 19-11.
2. Install radiator cover. Refer to para 19-13.
3. Replace companion seat. Refer to TM 9-2320-260-20.
4. Install hot water personnel heater. Refer to para 19-3.

END OF TASK



19-6. ENGINE COOLANT HEATER REPAIR.

TOOLS:
3/32-inch sockethead screw key (Allen wrench or equivalent)
Flat-tip screwdriver
Ohmmeter
Test light
Open end wrench set, pn GGG-W-636
Hand grinder
Scraper
Wire brush
Eye shields

SUPPLIES:
Solvent, dry cleaning, type II (SD-2), Fed. Spec P-D-680
Clean rags
Tags
Overheat thermostat preformed packing
Ignitor gasket
Standpipe compression sleeve
Burner preformed packing
Burner gasket
Ignitor

PERSONNEL: One

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedure. Remove engine coolant heater from truck. Refer to TM 9-2320-260-20.

b. Disassembly.

NOTE

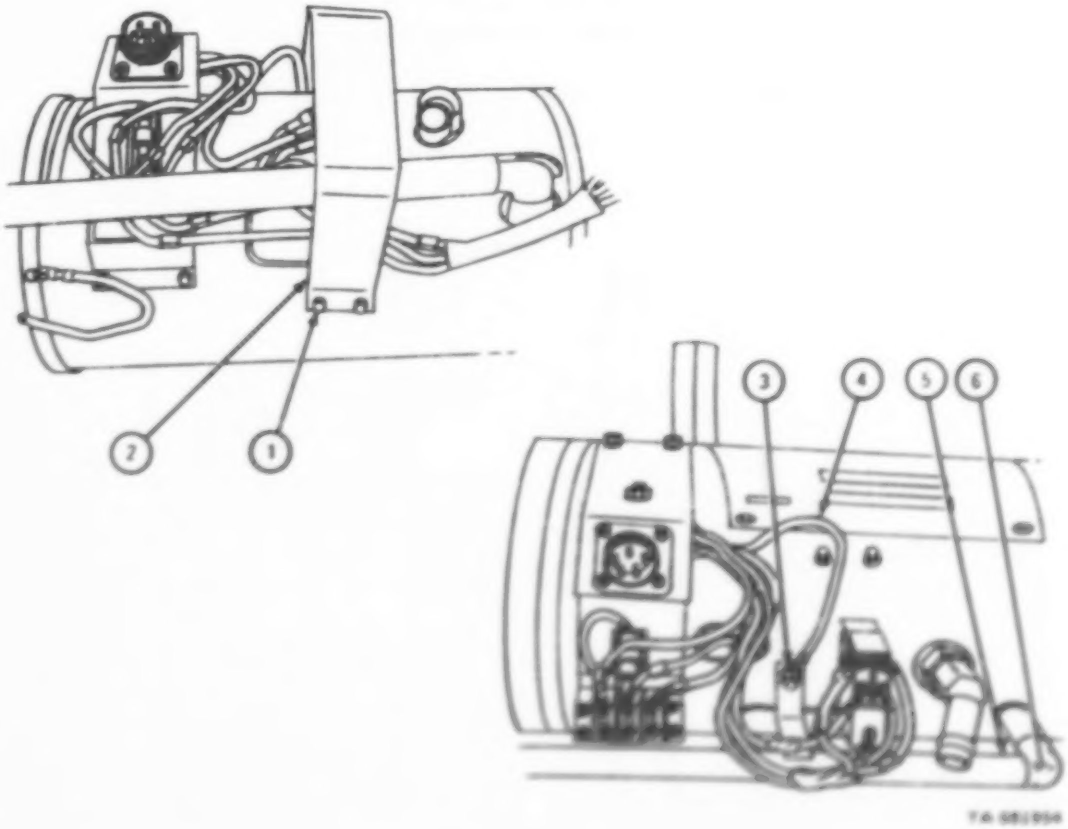
Tag all electrical leads before taking them off so they are put back in the same place.

(1) Removal of blower assembly.

FRAME 1

1. Using 1/4-inch wrench, unscrew and take out four screws (1). Take off guard (2).
2. Using 11/32-inch wrench, unscrew and take off nut (3) and ground lead (4). Take off air tubes (5 and 6).

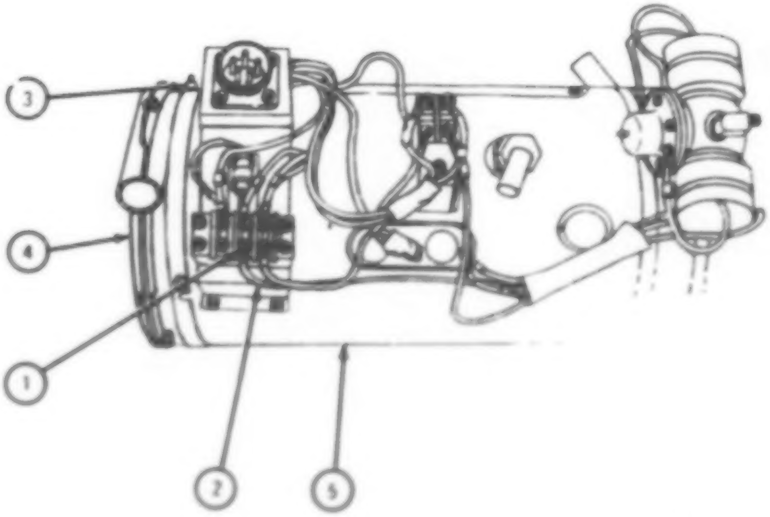
GO TO FRAME 2



FRAME 2

1. Using screwdriver, unscrew and take out screw (1). Take away wire lead (2).
2. Using wrench, unscrew and take off four nuts (3). Turn blower (4) to the left and pull it straight out of housing (5).

END OF TASK



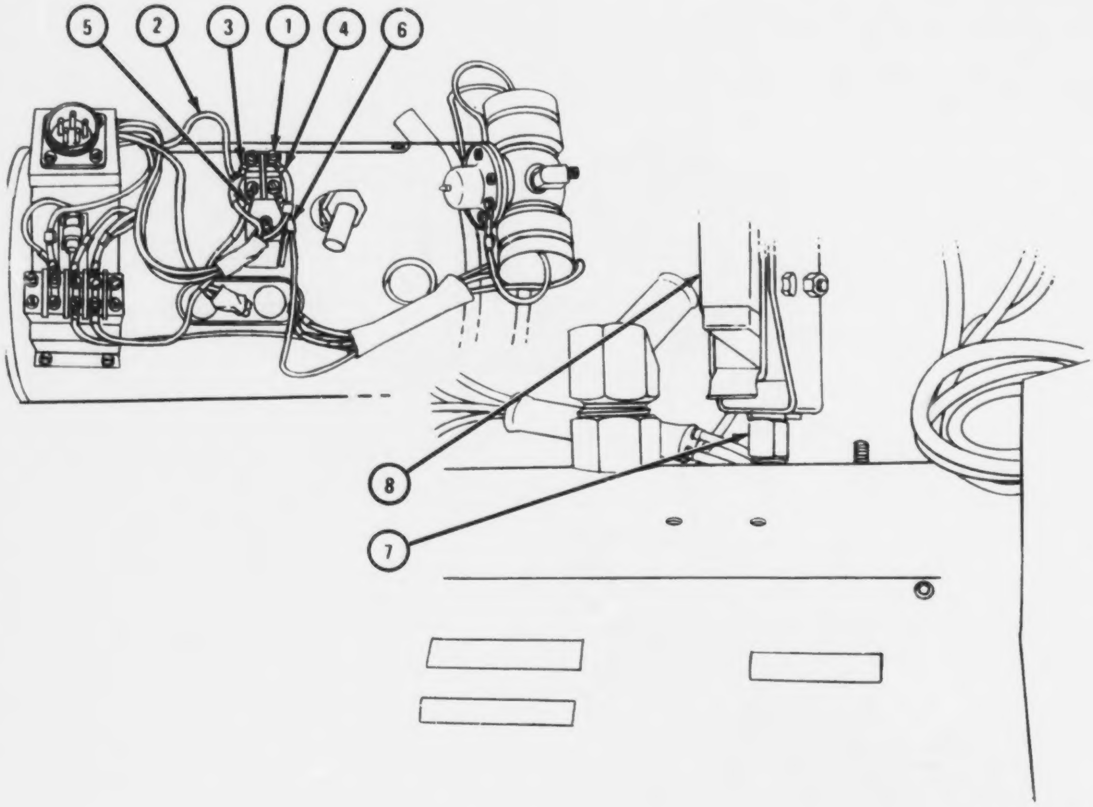
TA 081955

(2) Removal of flame detector switch.

FRAME 1

1. Using screwdriver, unscrew and take out five screws (1). Take off wire leads (2, 3, 4, 5, and 6).
2. Using 1/2-inch wrench, loosen fitting (7). Take out flame detector switch (8).

END OF TASK

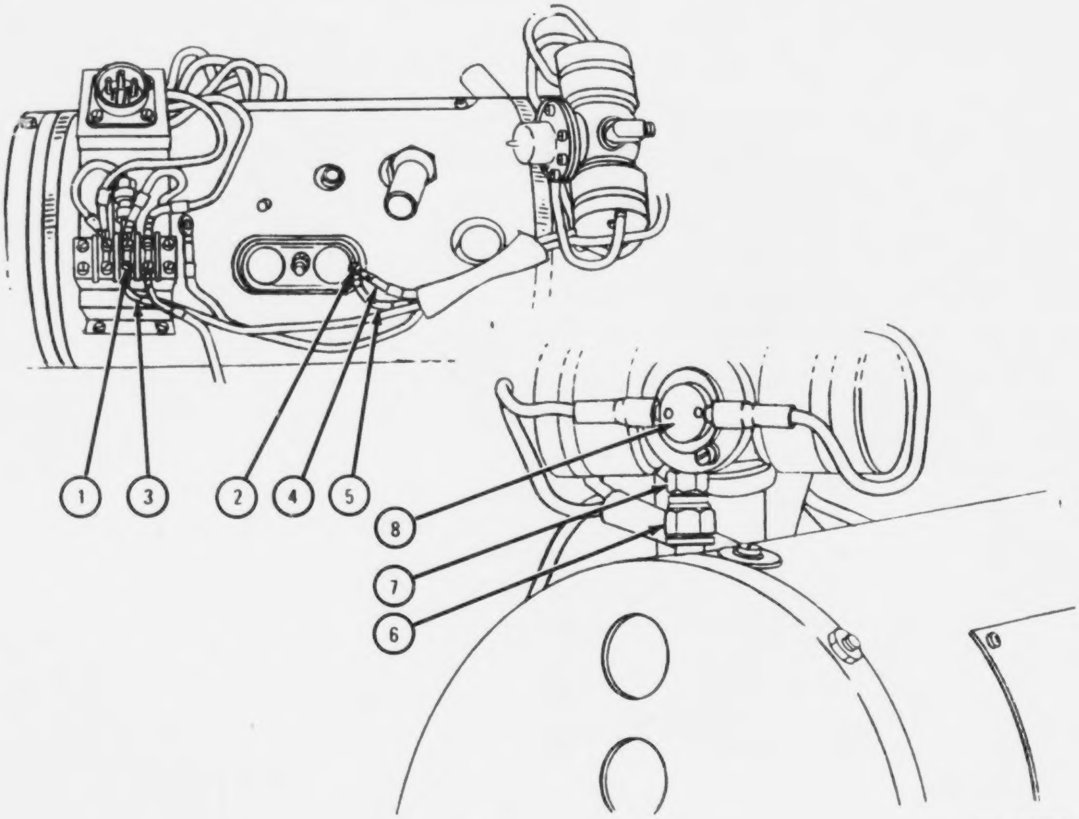


(3) Removal of fuel control valve.

FRAME 1

1. Using screwdriver, unscrew and take out screws (1 and 2). Take off wire leads (3, 4, and 5).
2. Using 9/16-inch wrench, hold coupling nut (6) and using 1/2-inch wrench, unscrew and take off coupling nut (7) and fuel control valve (8).

END OF TASK



TA 081957

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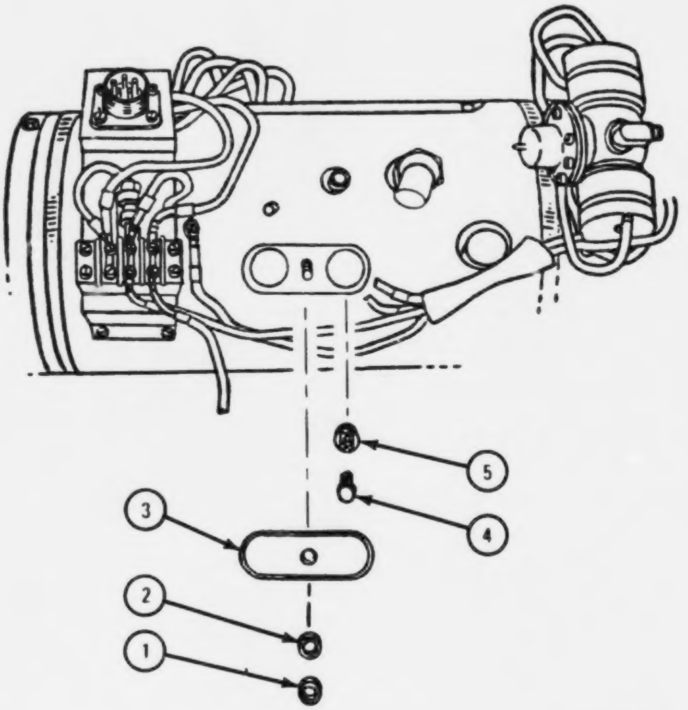
(4) Removal of overheat thermostat.

FRAME 1

1. Using 3/8-inch wrench, unscrew and take off nut (1) and washer (2). Take off cover (3).
2. Take out overheat thermostat (4) and preformed packing (5). Throw away preformed packing.

END OF TASK



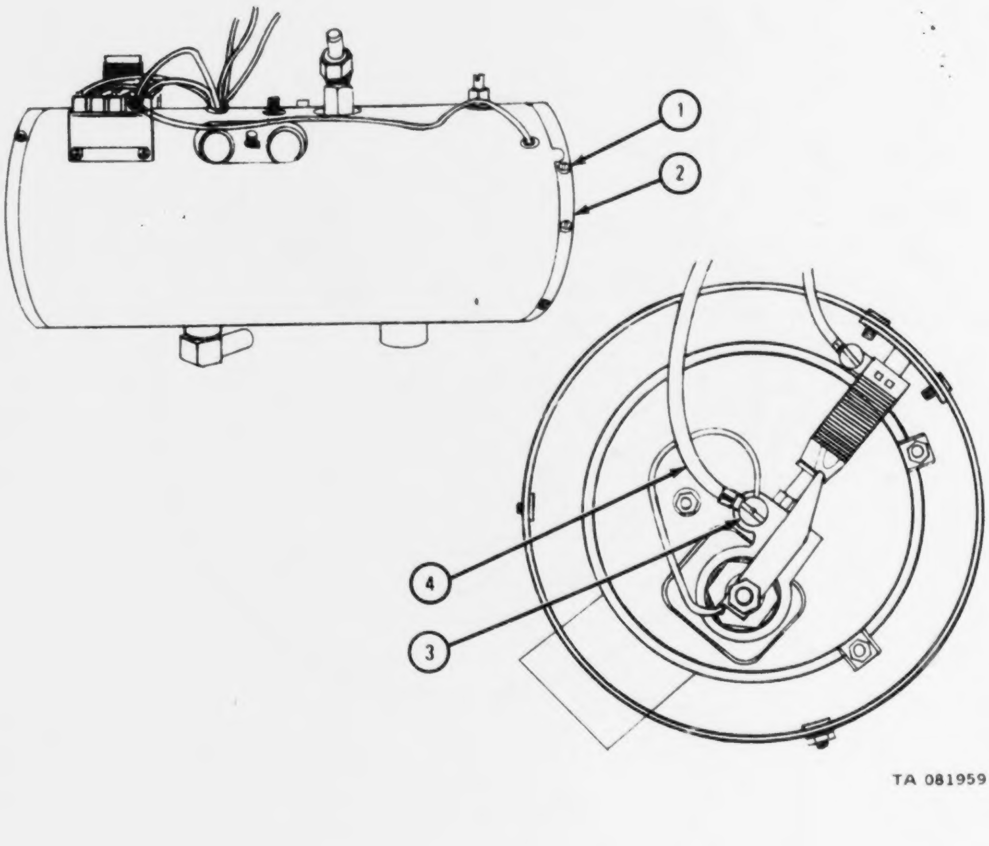
TA 081958

(5) Removal of ignitor.

FRAME 1

1. Using 11/32-inch wrench, loosen four nuts (1). Turn end plate (2) to the left and take it off.
2. Using screwdriver, unscrew and take out screw and starwasher (3). Move ground lead (4) out of the way.

GO TO FRAME 2

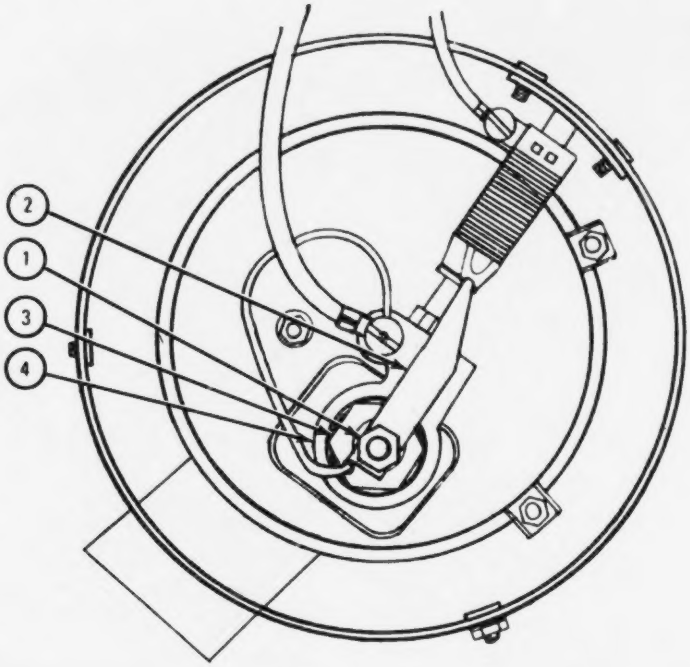


TA 081959

FRAME 2

1. Using 11/32-inch wrench, unscrew and take off two nuts and washer (1). Bend strap (2) up and out of the way.
2. Using 13/16-inch wrench, unscrew and take out ignitor (3) and gasket (4). Throw away gasket.

END OF TASK



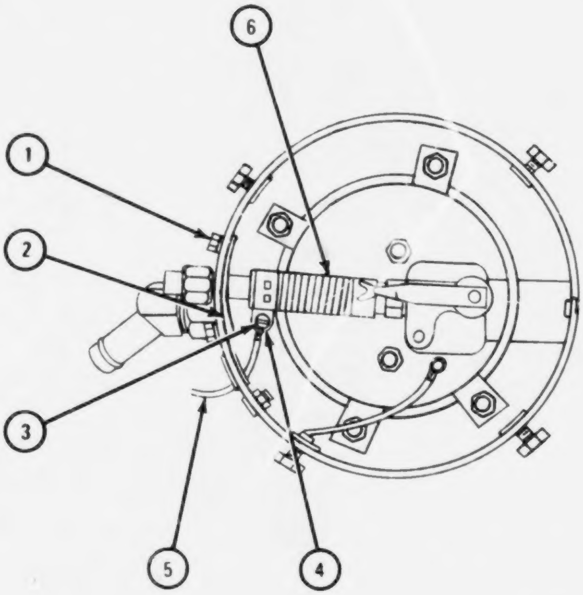
TA 081960

(6) Removal of standpipe and fuel preheater.

FRAME 1

1. Using 1/4-inch wrench, unscrew and take out two screws (1). Take out tapping plate (2).
2. Using screwdriver, and 5/16-inch wrench, unscrew and take out screw (3) and nut (4). Take away cable (5).
3. Using 1/2-inch wrench, unscrew and take out standpipe and preheater resistor (6).

GO TO FRAME 2



TA 081961

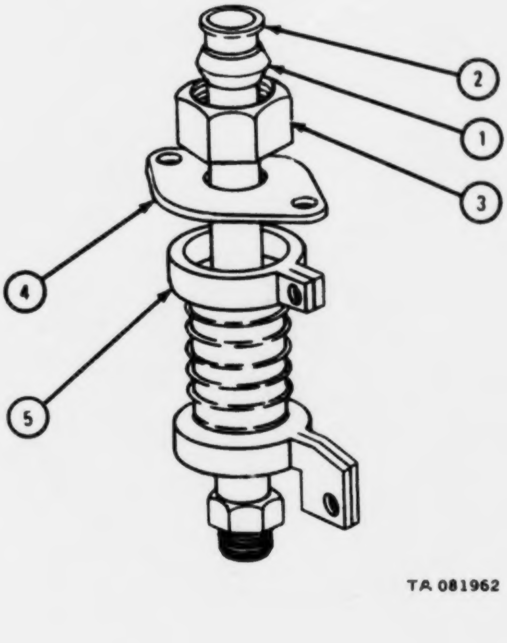
FRAME 2

CAUTION

When grinding off compression sleeve be careful not to damage tube.

1. Using hand grinder, grind off compression sleeve (1) from standpipe (2). Take off coupling nut (3), flange (4), and preheater resistor (5).

END OF TASK



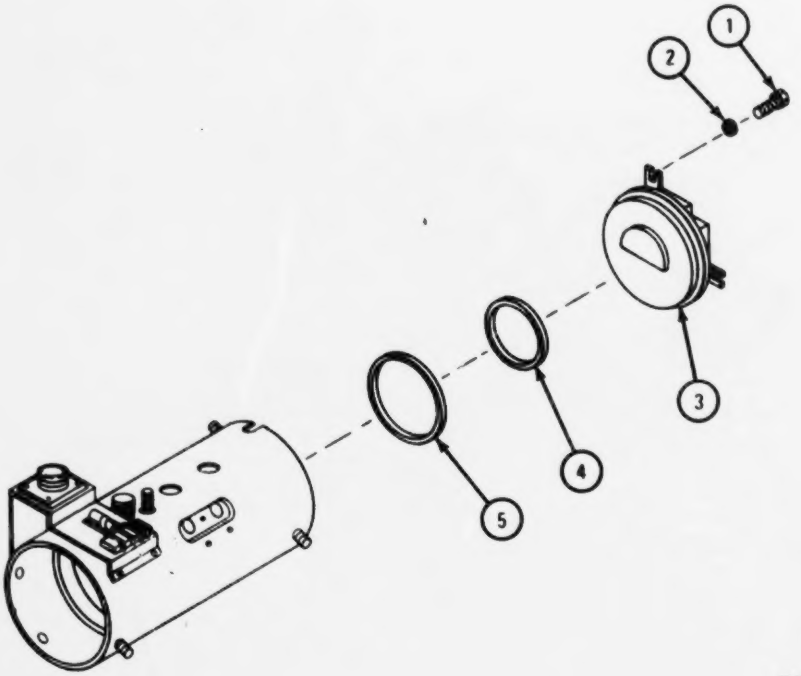
TA 081962

(7) Removal of burner assembly.

FRAME 1

1. Using 11/32-inch wrench, unscrew and take out three screws (1) and washers (2). Take off burner (3).
2. Take out preformed packing (4) from groove in burner (3).
3. Take out gasket (5). Throw away preformed packing (4) and gasket.

END OF TASK



TA 081963

(8) Removal of diode, terminal strip, and motor resistor.

FRAME 1

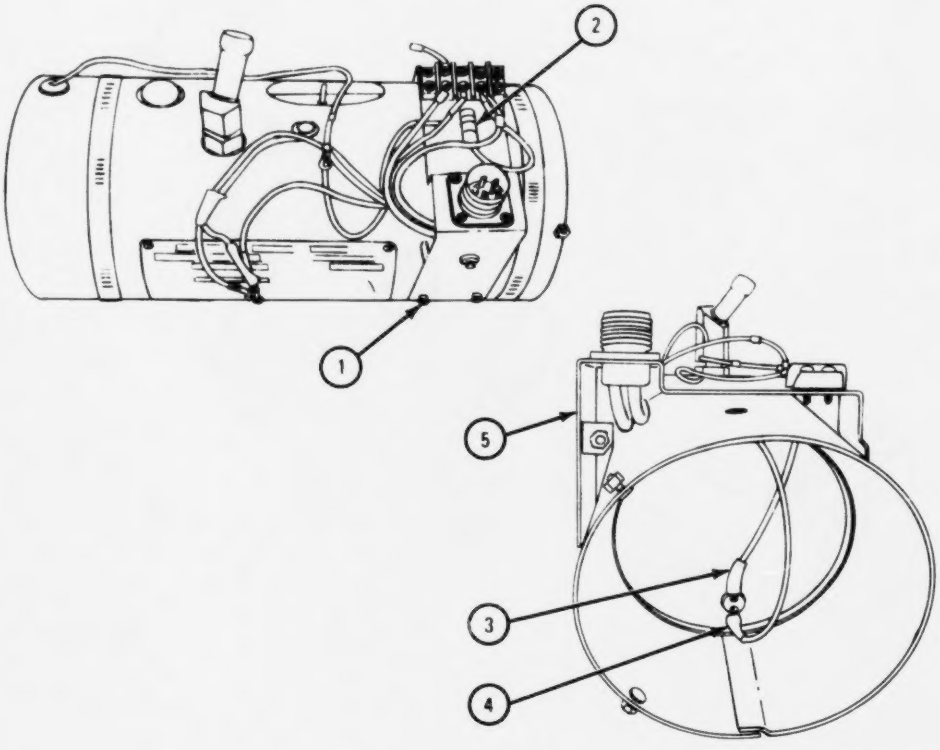
1. Using 1/4-inch wrench, unscrew and take out four screws (1).

NOTE

Check direction of arrow on diode (2) before taking it out to make sure it is put back the same way.

2. Take out diode (2).
3. Unplug wire leads (3 and 4).
4. Take off bracket (5).

GO TO FRAME 2

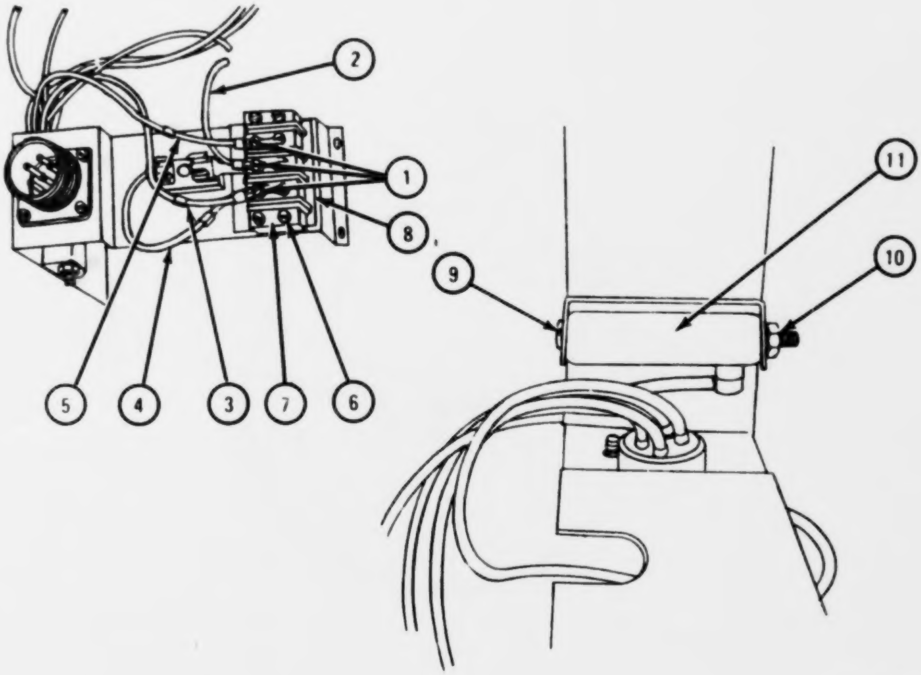


TA 081964

FRAME 2

1. Using screwdriver, unscrew and take out three screws (1). Take off wire leads (2, 3, 4, and 5).
2. Using screwdriver, unscrew and take out four screws (6). Take off terminal strip (7) and marker strip (8).
3. Using screwdriver and 11/32-inch wrench, unscrew and take out screw (9) and nut (10). Take off motor resistor (11).

END OF TASK



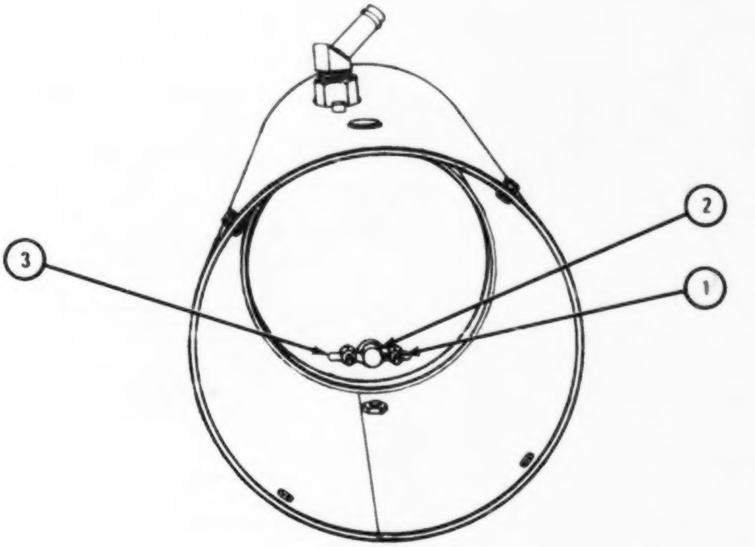
TA 081965

(9) Removal of thermostat.

FRAME 1

1. Using 5/16-inch wrench, unscrew and take off two nuts and washers (1). Take off thermostat (2).
2. Take off two spacers (3).

END OF TASK



TA 081966

(10) Removal of connector and cables.

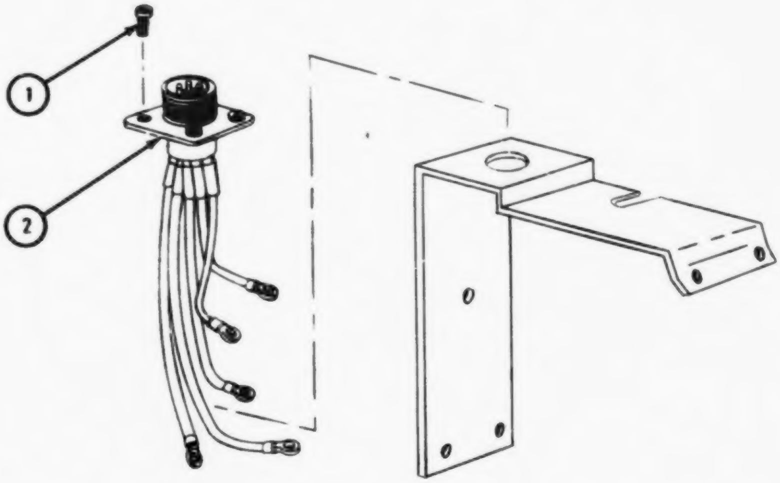
FRAME 1

NOTE

Check that receptacle assembly (1) is not damaged. If it is damaged, do this frame. If it is not damaged, go to para 19-6b(11).

1. Using wrench, unscrew and take out four screws (2).
2. Take out receptacle assembly (1).

END OF TASK



TA 081967

(11) Removal of housing.

FRAME 1

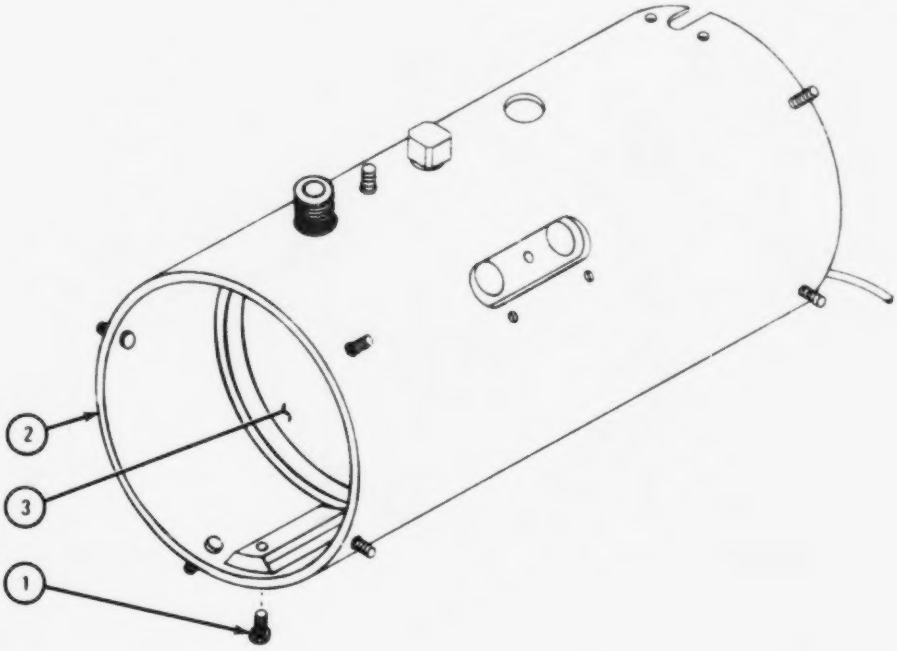
1. Using 1/4-inch wrench, unscrew and take out three screws (1).

CAUTION

> Be careful when taking out heat exhanger (3). Spreading housing (2) too far will damage it.

2. Spread apart housing (2) enough to slide out heat exchanger (3).
3. Take out heat exchanger (3).

END OF TASK



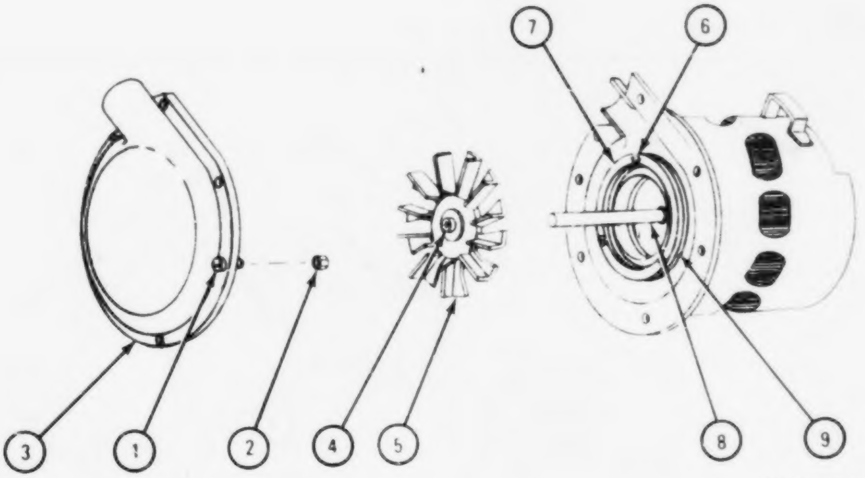
TA 081968

(12) Disassembly of blower.

FRAME 1

1. Using wrenches, unscrew and take out seven screws (1) and nuts (2). Take off cover (3).
2. Using allen wrench, loosen setscrew (4). Take off blower wheel (5).
3. Using screwdriver, unscrew and take out three screws (6). Take off plate (7), motor (8), and spacers (9).

END OF TASK



c. Cleaning.

FRAME 1

1. Using scraper, scrape carbon off heat exchanger (1).

WARNING

> Eye shields must be worn when using compressed air. Eye injury can occur if eye shields are not used.

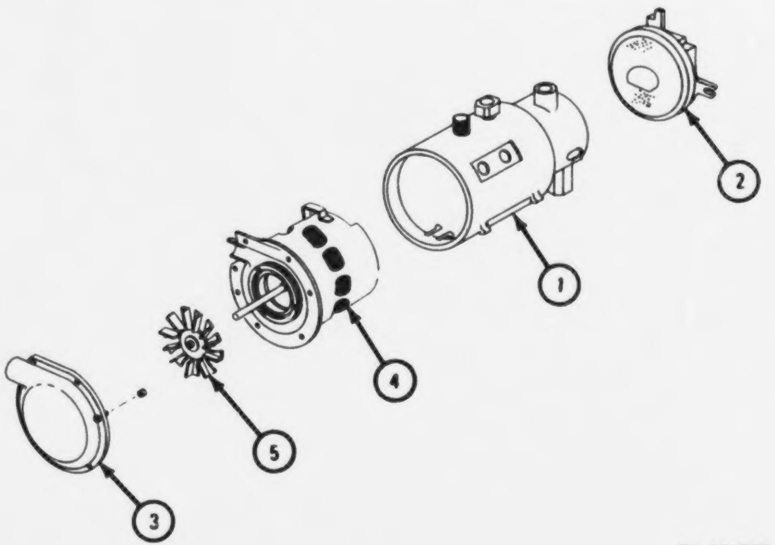
2. Soak heat exchanger (1) in water. Dry it with compressed air.
3. Using scraper, scrape carbon off of burner head (2). Be careful not to damage screen or wick.

WARNING

> Dry cleaning solvent is flammable. Do not use near an open flame. Keep a fire extinguisher nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and damage to equipment.

4. Using solvent, clean blower housing halves (3 and 4) and wheel assembly (5). Dry with clean rags.

END OF TASK



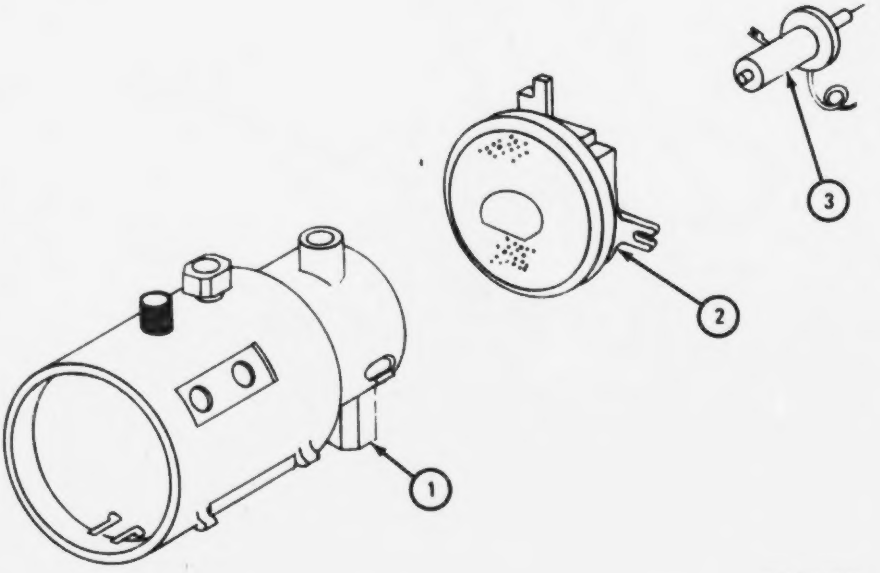
TA 081970

d. Inspection and Repair.

FRAME 1

1. Check that heat exchanger (1) has no damage or sign of leakage.
2. If heat exchanger is damaged, corroded or shows signs of leakage, throw it away and get a new one.
3. Check that wick in burner head (2) is not damaged in any way. If wick is damaged, get a new burner head.
4. Throw away ignitor (3) and get a new one.

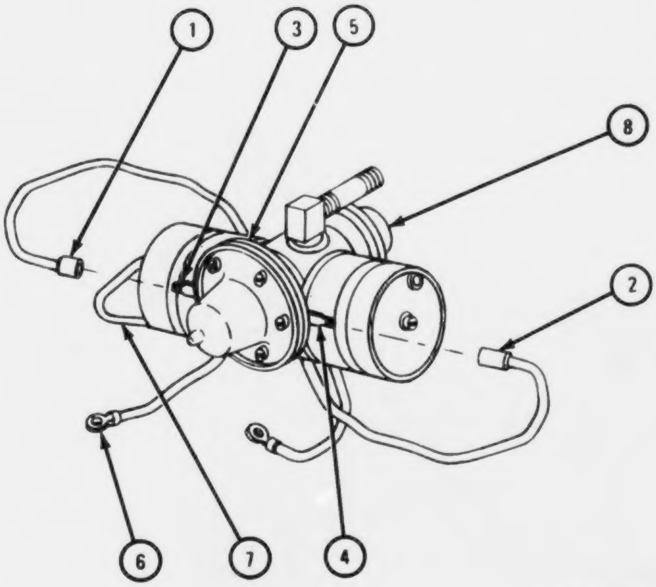
GO TO FRAME 2



FRAME 2

1. Pull electrical connectors (1 and 2) off heating element terminals (3 and 4).
2. Put ohmmeter leads on heating element terminals (3 and 4) and check for continuity through heating element (5). If heating element has open circuit, throw it away and get a new one.
3. Push electrical connectors (1 and 2) back on heating element terminals (3 and 4).
4. Check that electrical leads (1, 6, and 7) are not damaged in any way. If leads are loose, resolder them.
5. If electrical leads (1, 6, and 7) need more repair, get a new fuel control valve (8).

GO TO FRAME 3



TA 081972

FRAME 3

CAUTION

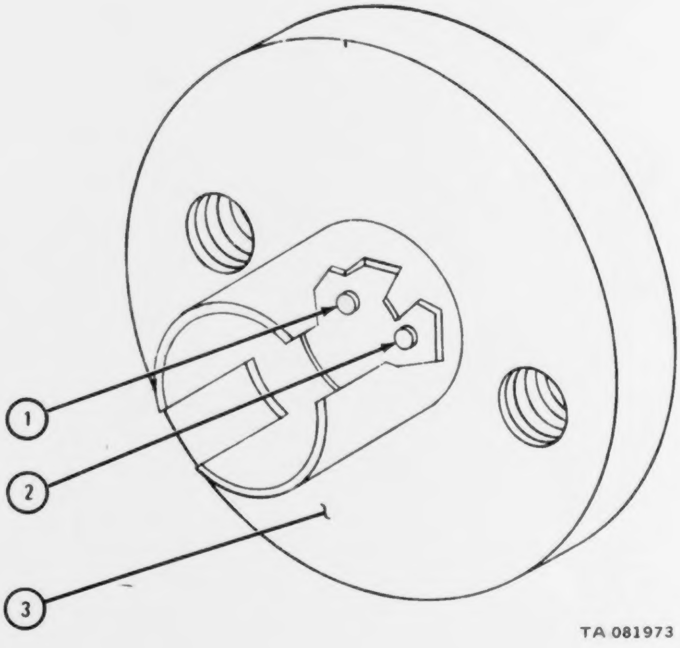
Do not put thermostat (3) in any liquid. It is not waterproof and cannot be fixed.

NOTE

The contacts of thermostat (3) open at 65 to 75°F and may open at room temperature. Since contacts do not close until temperature is between 20 and 40°F, it may be necessary to refrigerate thermostat to see if it is working. This test does not have to be done if heater does not start correctly.

1. Hook up a test light to thermostat contacts (1 and 2). At a temperature of 65 to 75°F, test light must not light. If test light does light, throw away thermostat (3) and get a new one.
2. If test light did not light in step 1, put thermostat (3) in a refrigerator set at 20°F. If test light does not light, throw away thermostat and get a new one.

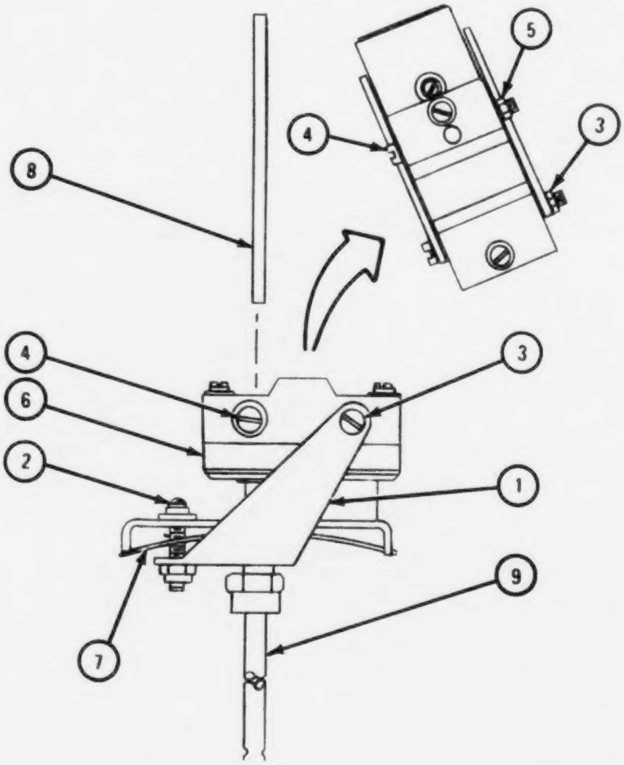
GO TO FRAME 4



FRAME 4

1. On flame detector switch assembly (1):
    - a. Using screwdriver, unscrew and take out screw (2).
    - b. Using screwdriver, loosen screw (3).
    - c. Using screwdriver and wrench, unscrew and take out screw with flat washer (4) and starwasher and nut (5).
    - d. Turn back microswitch (6).
    - e. Take out bow spring (7).
    - f. Turn flame detector switch (1) upside down and let ceramic rod (8) slide out of tube (9).

GO TO FRAME 5

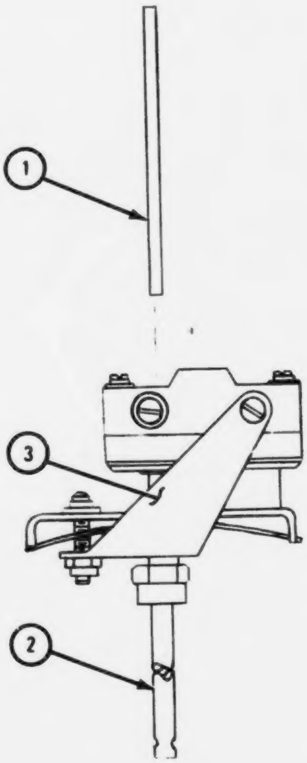


TA 081974

FRAME 5

1. Check ceramic rod (1) to see it is not chipped or broken. If ceramic rod is damaged, throw it away and get a new one.
2. Using wire brush, clean tube (2). Check that is is not damaged in any way. If tube is damaged, throw away flame detector switch assembly (3).

GO TO FRAME 6

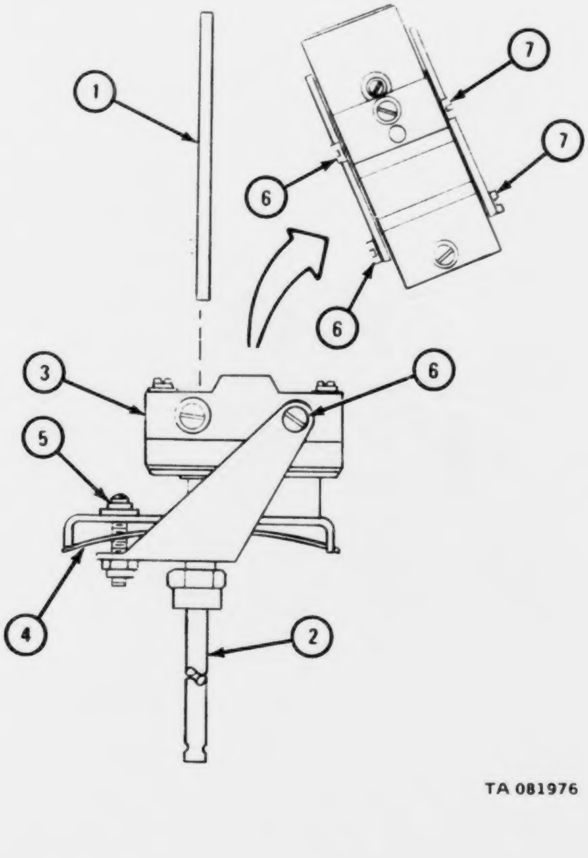


TA 081975

FRAME 6

1. Slide ceramic rod (1) into tube (2).
2. Turn microswitch (3) back into position.
3. Put in bow string (4).
4. Using screwdriver, screw in adjusting screw (5).
5. Put two screws and flat washers (6) in place. Screw on two starwashers and nuts (7).
6. Using wrench and screwdriver, screw in two screws (6) until microswitch (3) is held in place but not locked.

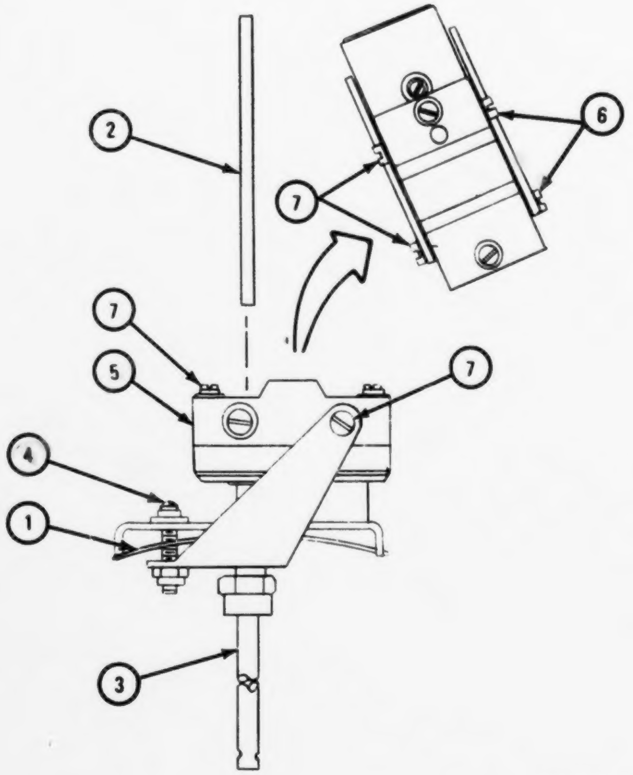
GO TO FRAME 7



FRAME 7

1. Press up on center of bow spring (1) so ceramic rod (2) can center itself in tube (3).
2. Back off adjusting screw (4) until microswitch (5) clicks (one full turn), then turn in adjusting screw 3/4 of a turn.
3. Using wrench and screwdriver, tighten two nuts (6) on two screws (7).

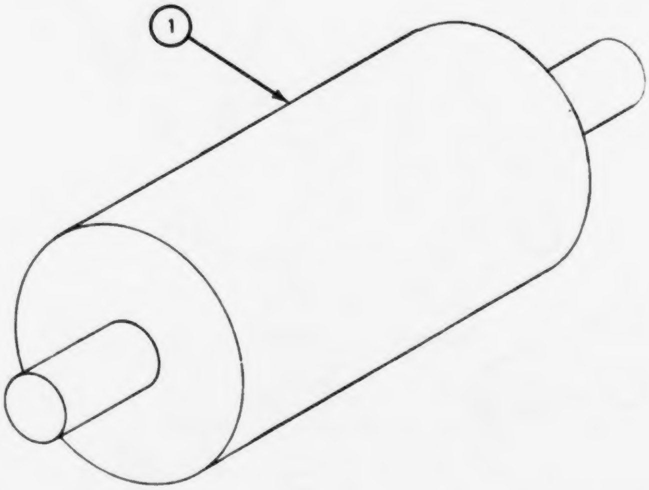
GO TO FRAME 8



FRAME 8

1. Put ohmmeter - and + leads on ends of diode (1). Check ohmmeter to see if circuit is open or closed.
2. Switch - and + leads on diode (1). Check ohmmeter to see if circuit is open or closed.
3. If circuits were open in both tests or closed in both tests, throw away diode (1) and get a new one.

GO TO FRAME 9

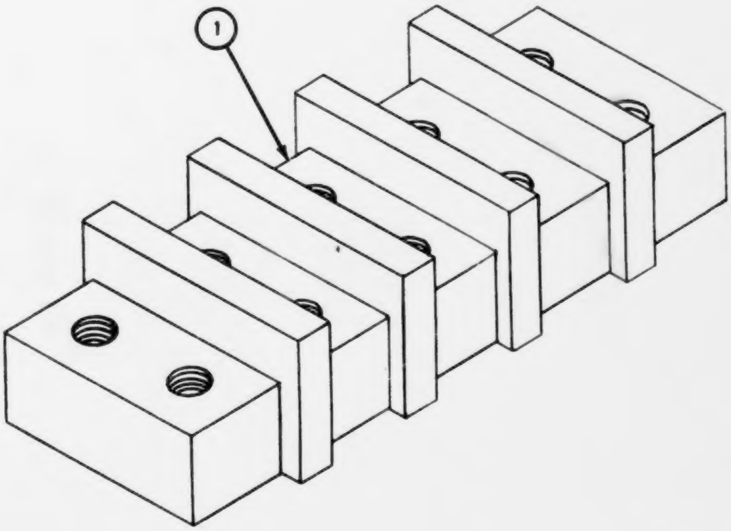


TA 081979

FRAME 9

1. Check that terminal strip (1) is not damaged in any way. If damaged, get a new one.
2. Check that electrical wiring has no cracked or worn insulation. If wiring is damaged, get new wiring.

END OF TASK



TA 081980

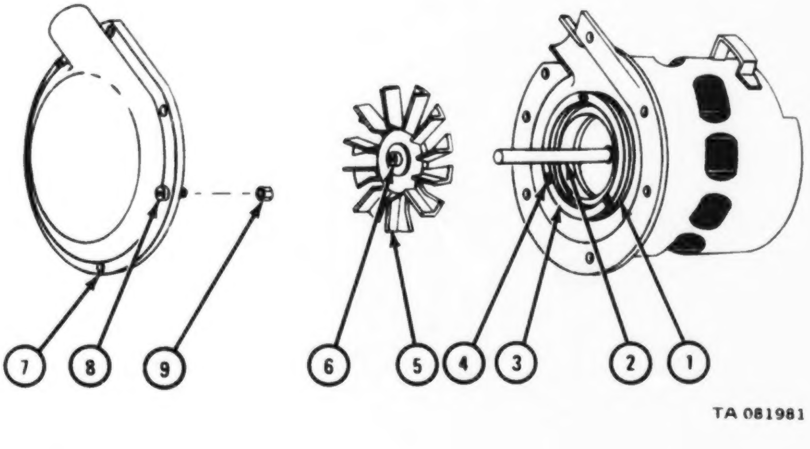
e. Assembly.

(1) Assembly of blower.

FRAME 1

1. Put spacers (1), motor (2), and plate (3) in place and using screwdriver, screw in and tighten three screws (4).
2. Put blower wheel (5) in place and using allen wrench, tighten set screw (6).
3. Put cover (7) in place and using wrenches, screw in and tighten seven screws (8) and nuts (9).

END OF TASK



(2) Replacement of housing.

FRAME 1

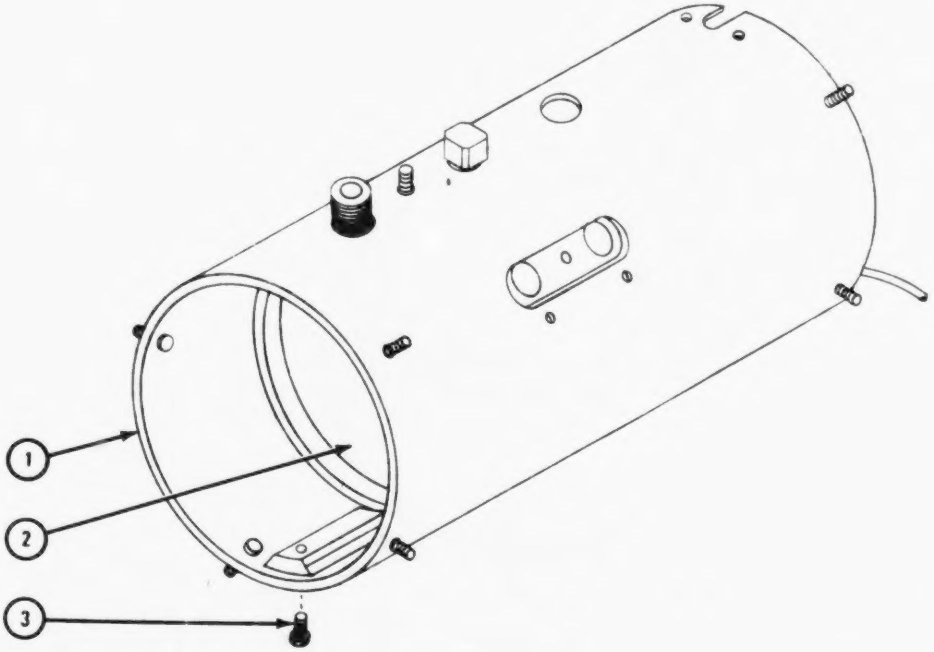
1. Spread apart housing (1) enough to slide in heat exchanger (2).

CAUTION

Be careful when putting heat exchanger (2) in housing (1).
Spreading housing too far will damage it.

2. Slide heat exchanger (2) in place. Using 1/4-inch wrench, screw in and tighten three screws (3).

END OF TASK



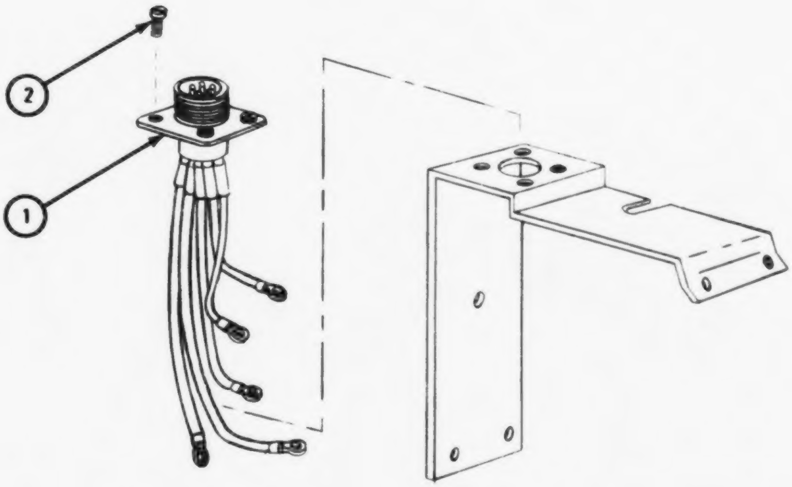
TA 081982

(3) Replacement of connector and cables.

FRAME 1

1. Put receptacle assembly (1) in place.
2. Using wrench, screw in and tighten four screws (2).

END OF TASK



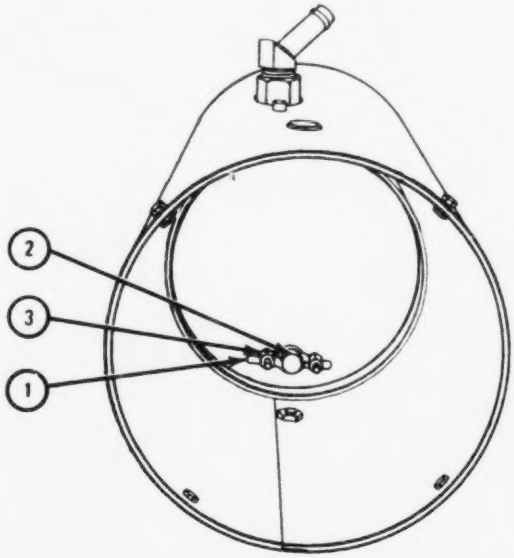
TA 081983

(4) Replacement of thermostat.

FRAME 1

1. Put two spacers (1) in place.
2. Put in thermostat (2). Using 5/16-inch wrench, screw on and tighten two nuts and washers (3).

END OF TASK



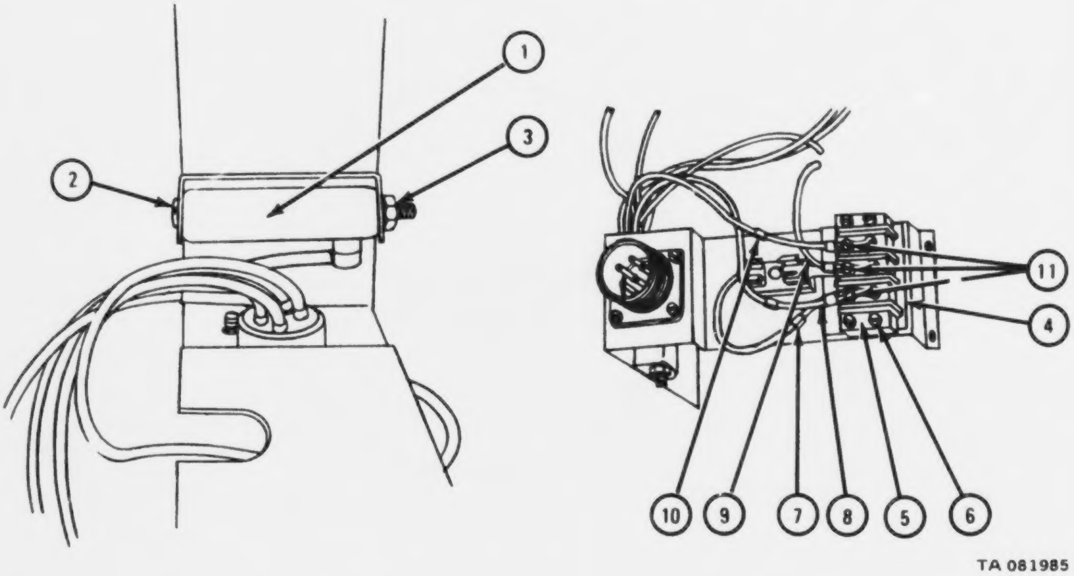
TA 081984

(5) Replacement of diode, terminal strip, and motor resistor.

FRAME 1

1. Put motor resistor (1) in place. Using screwdriver and 11/32-inch wrench, screw in and tighten screw (2) and nut (3).
2. Put marker strip (4) and terminal strip (5) in place. Using screwdriver, screw in and tighten four screws (6).
3. Put wire leads (7, 8, 9, and 10) in place as tagged. Using screwdriver, screw in and tighten three screws (11). Take off tags.

GO TO FRAME 2



FRAME 2

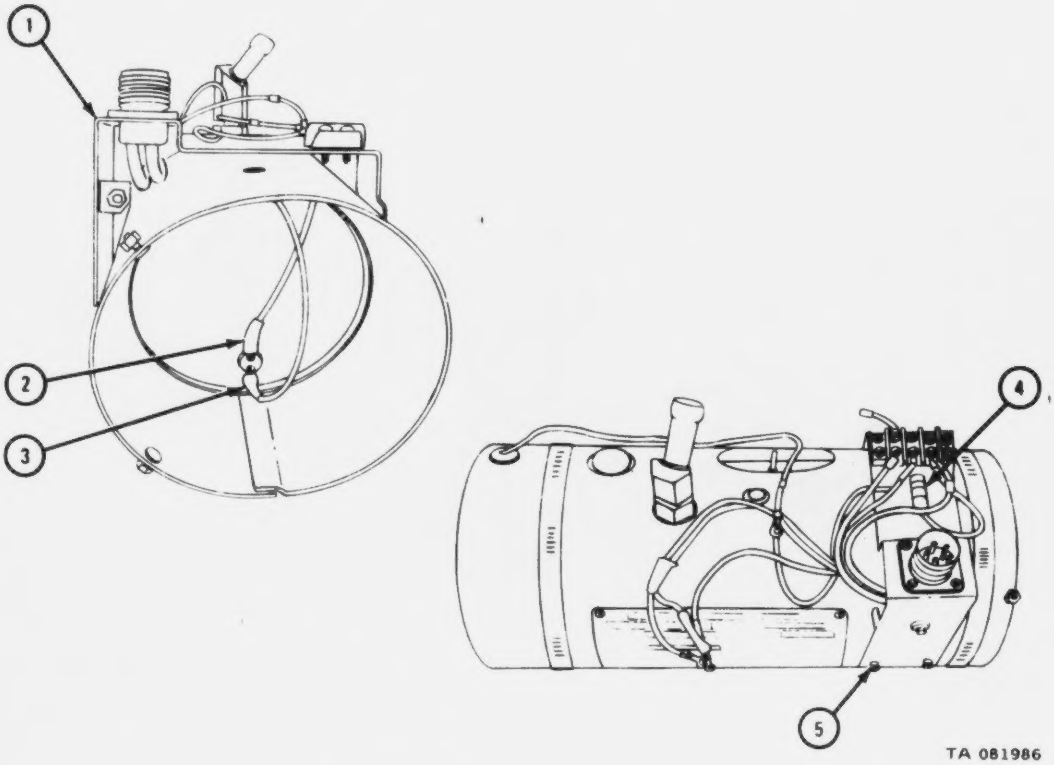
1. Put bracket (1) in place.
2. Plug in wire leads (2 and 3).

NOTE

When putting in diode (4), make sure arrow on diode is facing the same way as noted.

3. Put in diode (4).
4. Using 1/4-inch wrench, screw in and tighten four screws (5).

END OF TASK



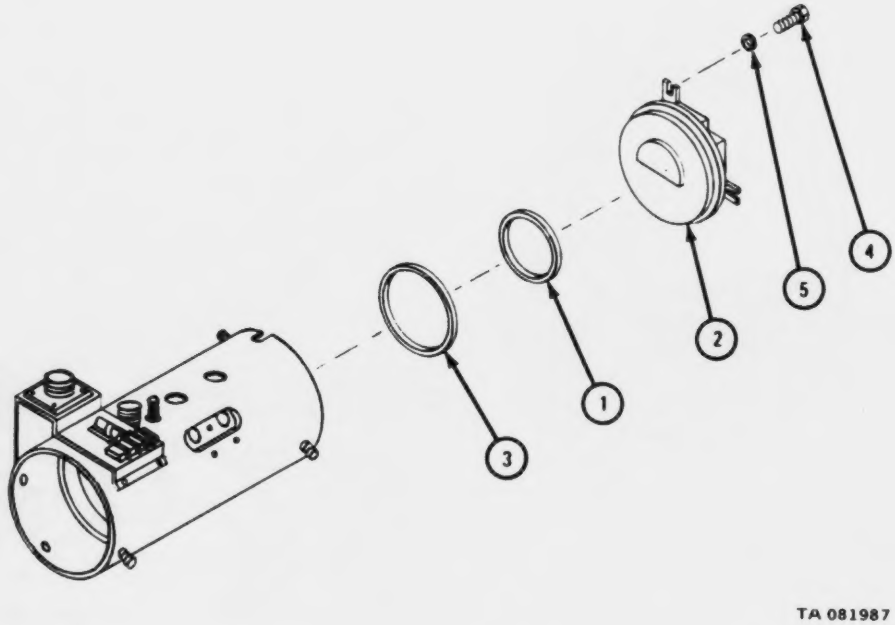
TA 081986

(6) Replacement of burner assembly.

FRAME 1

1. Put a new preformed packing (1) in groove of burner (2).
2. Put new gasket (3) in place.
3. Put burner (2) in place and using 11/32-inch wrench, screw in and tighten four screws (4) and washers (5).

END OF TASK

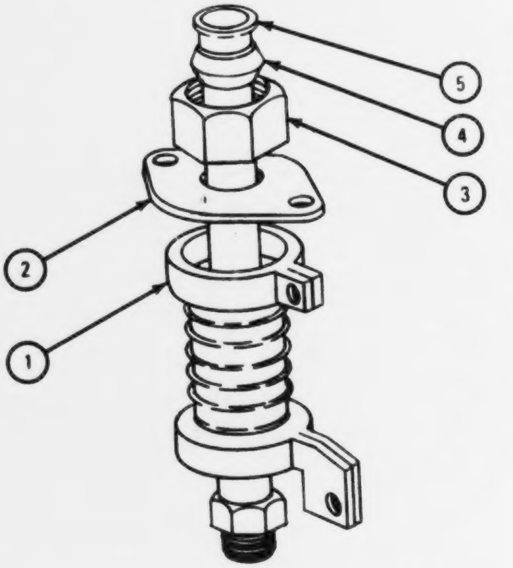


(7) Replacement of standpipe and fuel preheater.

FRAME 1

1. Put preheater resistor (1), flange (2), coupling nut (3), and compression sleeve (4) on standpipe (5).

GO TO FRAME 2

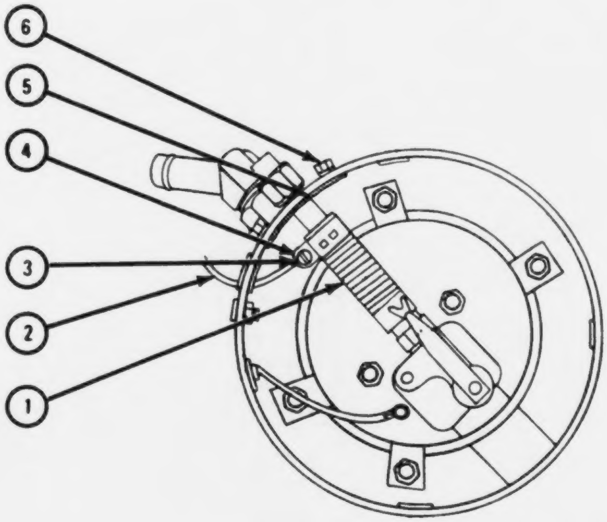


TA 081988

FRAME 2

1. Using 1/2-inch wrench, screw in and tighten standpipe and preheater resistor (1).
2. Put cable (2) in place. Using screwdriver and 5/16-inch wrench, screw in and tighten screw (3) and nut (4).
3. Put topping plate (5) in place and using 1/4-inch wrench, screw in and tighten two screws (6).

END OF TASK



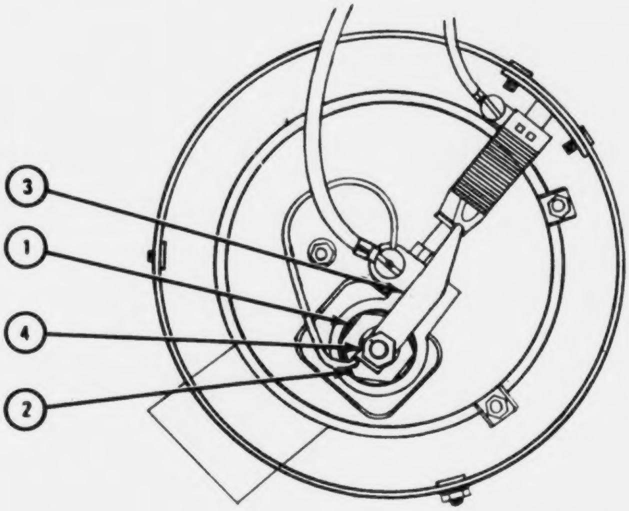
TA 081989

(8) Replacement of ignitor.

FRAME 1

1. Put new gasket (1) in place. Using 13/16-inch wrench, screw in and tighten ignitor (2).
2. Bend strap (3) down onto ignitor (2).
3. Using 11/32-inch wrench, screw on and tighten two nuts and washer (4).

GO TO FRAME 2

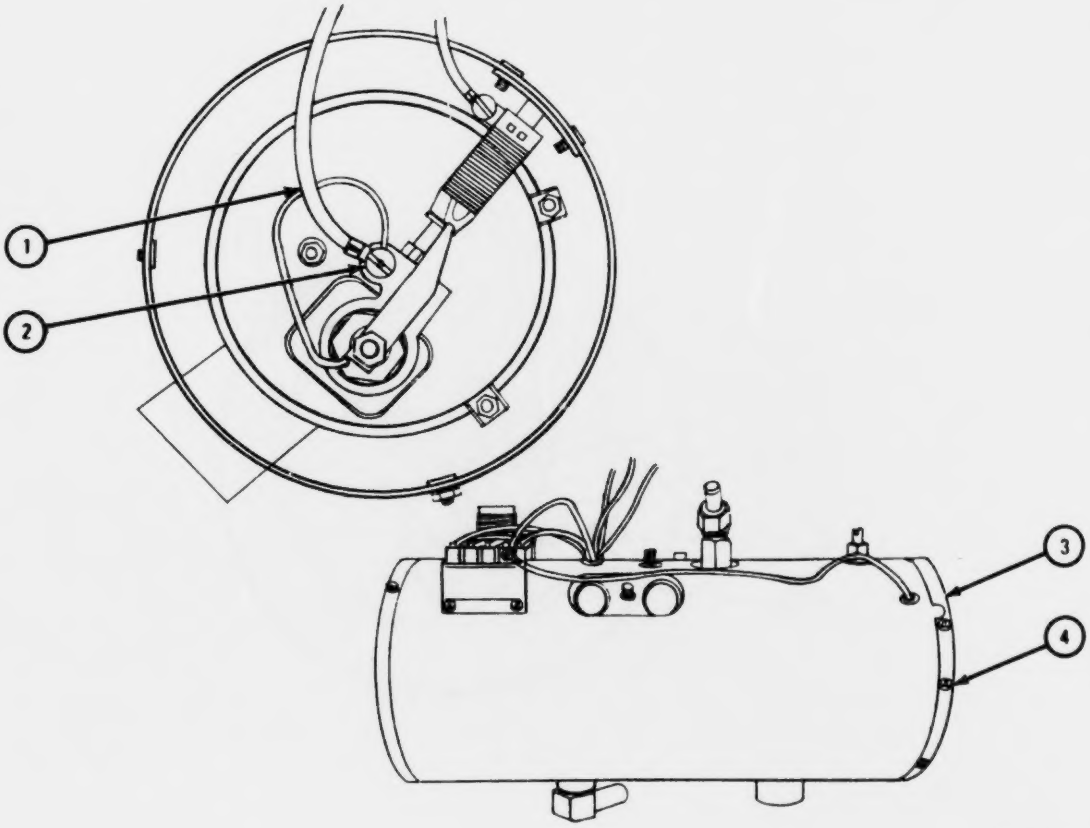


TA 081990

FRAME 2

1. Put ground lead (1) in place as tagged. Using screwdriver, screw in and tighten screw and starwasher (2). Take off tag.
2. Put end plate (3) in place and turn it to the right.
3. Using 11/32-inch wrench, tighten four nuts (4).

END OF TASK



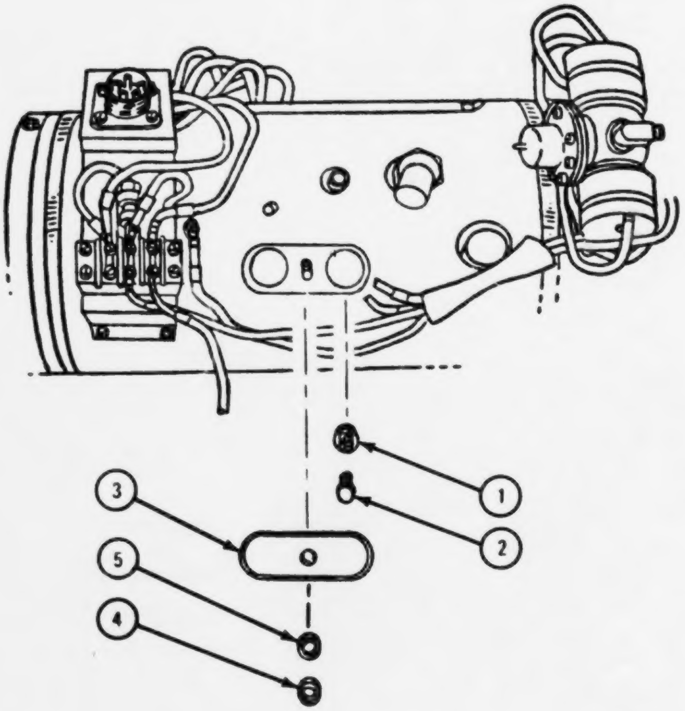
TA 081991

(9) Replacement of overheat thermostat.

FRAME 1

1. Put new preformed packing (1) and overheat thermostat (2) in place.
2. Put cover (3) in place. Using 3/8-inch wrench, screw on and tighten nut (4) and washer (5).

END OF TASK



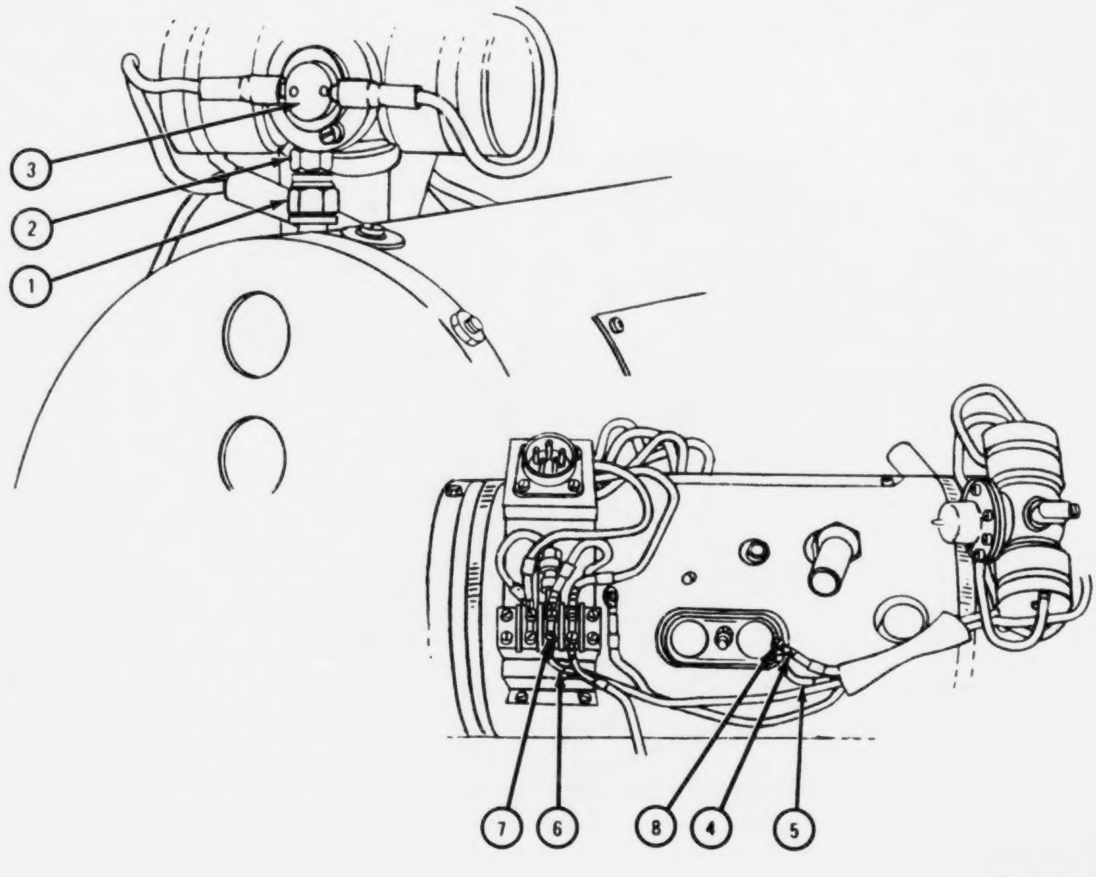
TA 081992

(10) Replacement of fuel control valve.

FRAME 1

1. Using 9/16-inch and 1/2-inch wrenches, hold coupling nut (1) and screw on and tighten coupling nut (2) and fuel control valve (3).
2. Put wire leads (4, 5, and 6) in place as tagged. Using screwdriver, screw in and tighten screws (7 and 8). Take off tags.

END OF TASK



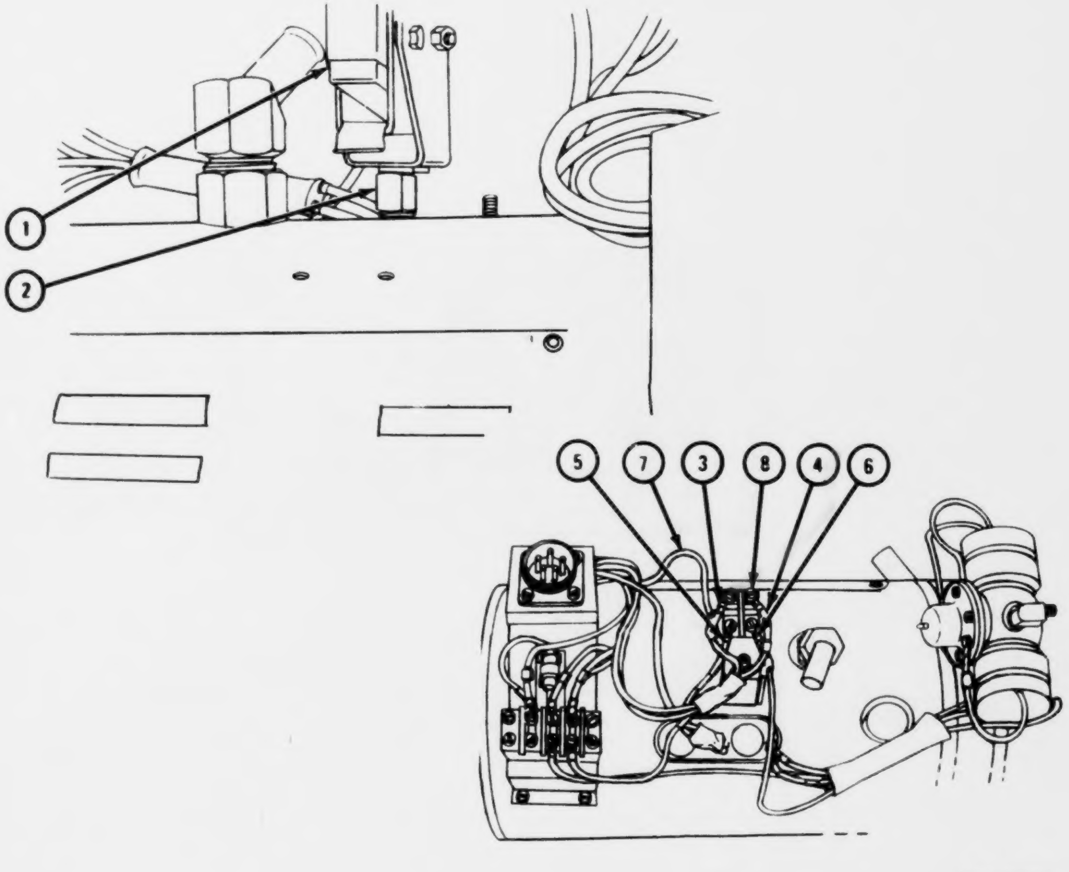
TA 081993

(11) Replacement of flame detector switch.

FRAME 1

1. Put flame detector switch (1) in place. Using 1/2-inch wrench, screw on and tighten fitting (2).
2. Put wire leads (3, 4, 5, 6, and 7) in place as tagged. Using screwdriver, screw in and tighten five screws (8).

END OF TASK



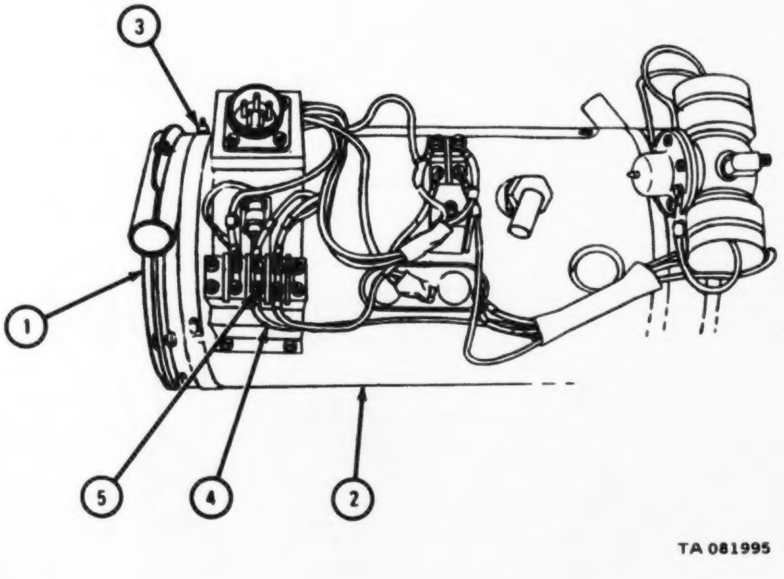
TA 081994

(12) Replacement of blower assembly.

FRAME 1

1. Put blower (1) straight into housing (2) and turn it to the right. Using wrench, screw on and tighten four nuts (3).
2. Put wire lead (4) in place as tagged. Using screwdriver, screw in and tighten screw (5). Take off tags.

GO TO FRAME 2



TA 081995

FRAME 2

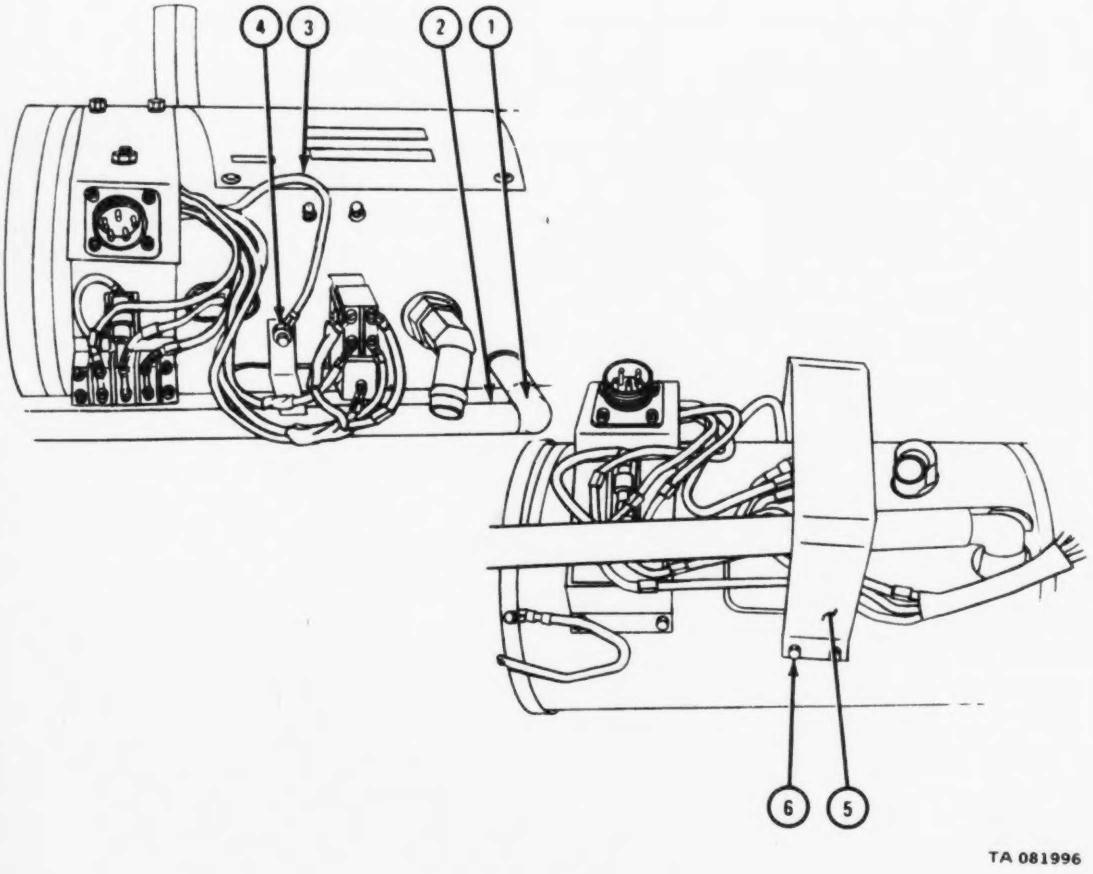
1. Put air tubes (1 and 2) in place.
2. Put ground lead (3) in place as tagged. Using 11/32-inch wrench, screw on and tighten nut (4). Take off tags.
3. Put guard (5) in place. Using 1/4-inch wrench, screw in and tighten four screws (6).

NOTE

Follow-on Maintenance Action Required:

1. Replace engine coolant heater. Refer to TM 9-2320-260-20.
2. Operate and check fuel burning heater for proper operation. Refer to TM 9-2320-260-10.

END OF TASK



19-7. FUEL BURNING PERSONNEL HEATER KIT INSTALLATION.

TOOLS: Combination box and open end wrench set, NSN 5120-00-357-8411
Drill
Cutter
Scribe
Ruler
Flat-tip screwdriver
Cross-tip screwdriver, Phillips type
Hammer
Pliers
3/16-inch bit
5/16-inch bit
7/16-inch bit
9/64-inch bit
13/64-inch bit
Adjustable wrench
Wood block

SUPPLIES: Fuel burning personnel heater kit

PERSONNEL: Two

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedures.

(1) Install engine coolant heater kit. Refer to para 19-5.

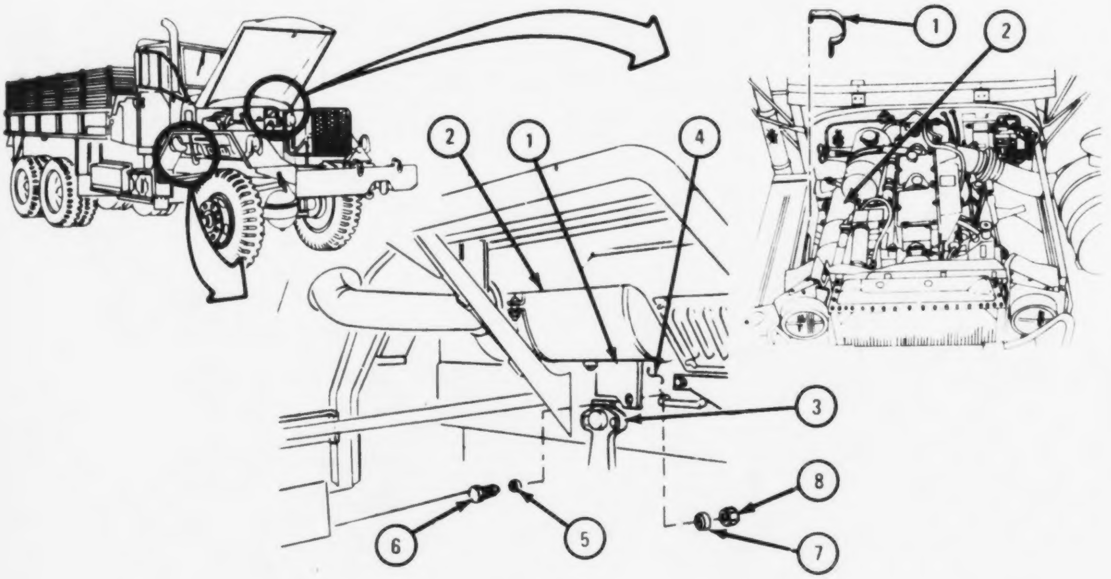
(2) Install slave receptacle kit. Refer to para 19-15.

b. Installation of Support Assembly.

FRAME 1

1. Hold rear support bracket (1) around muffler (2) and above shock absorber mounting bracket (3). Aline hole in bracket with hole in frame rail (4).
2. Put in lockwasher (5) and screw (6).
3. Using wrench, screw on and tighten lockwasher (7) and nut (8).

GO TO FRAME 2

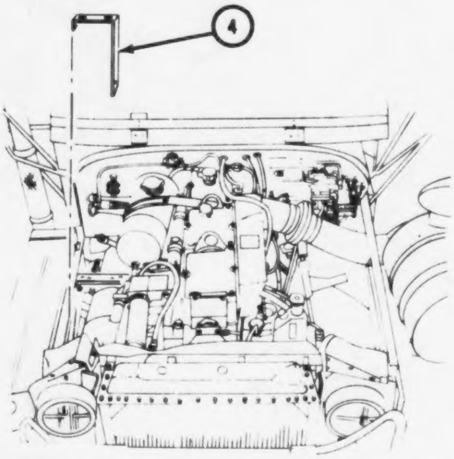


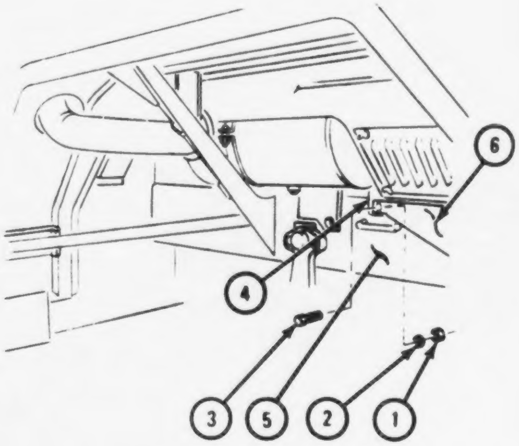
TA 081405

FRAME 2

1. Using wrench, unscrew and take off nut (1) and lockwasher (2). Take out screw (3).
2. Hold front support bracket (4) between frame rail (5) and support panel (6) and aline holes. Put back screw (3).
3. Using wrench, screw on and tighten lockwasher (2) and nut (1).

GO TO FRAME 3



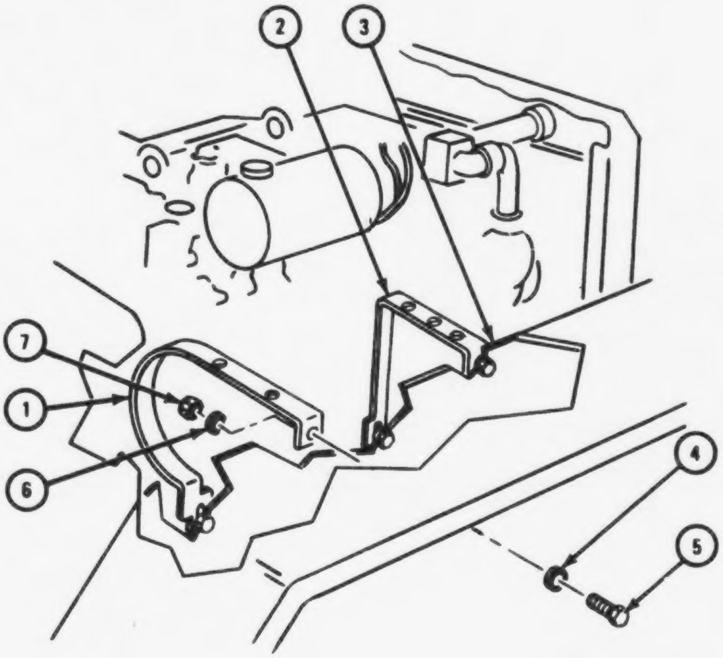


TA 081406

FRAME 3

1. Hold top of brackets (1 and 2) level and against fender panel (3).
2. Using scribe, mark location of holes on fender panel (3).
3. Swing brackets (1 and 2) away from each other.
4. Using drill and 7/16-inch bit, drill holes in fender panel (3) at scribe marks.
5. Hold brackets (1 and 2) in place on drilled holes and put in two lockwashers (4) and screws (5).
6. Using wrench, screw on and tighten two lockwashers (6) and nuts (7).

GO TO FRAME 4

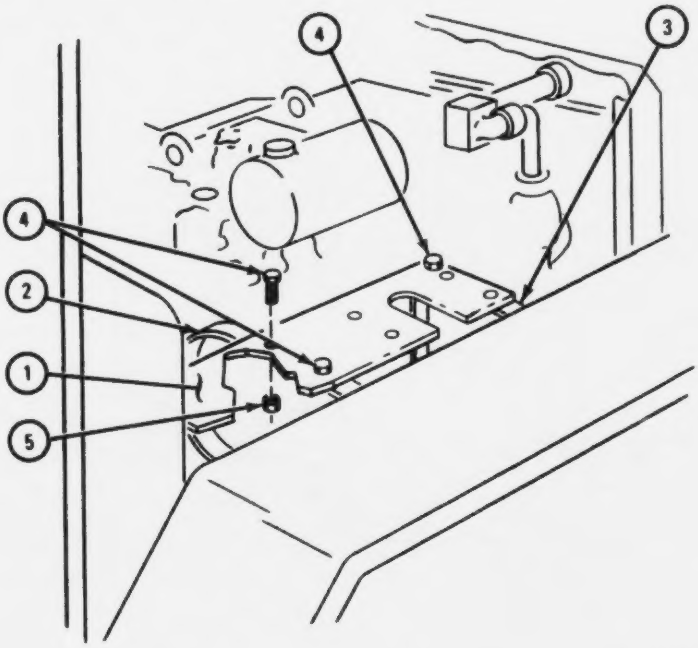


TA 081407

FRAME 4

1. Put support (1) on brackets (2 and 3) as shown. Put in three screws (4).
2. Using wrench, screw on and tighten three nuts (5).

END OF TASK



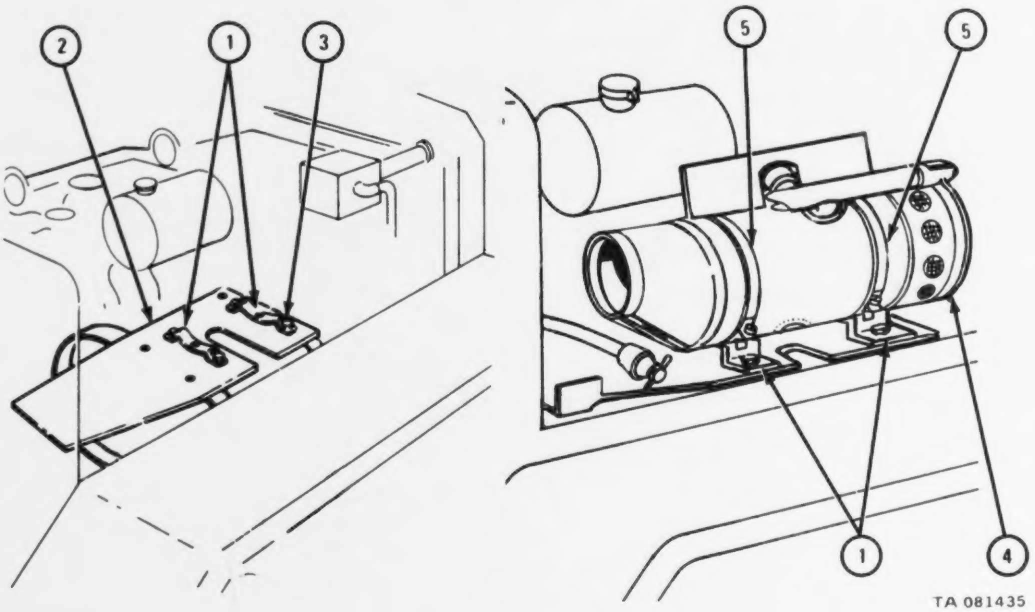
TA 081408

c. Installation of Personnel Heater.

FRAME 1

1. Put two brackets (1) in place on support bracket (2). Using wrench, screw in and tighten four screws (3).
2. Mount personnel heater (4) on brackets (1) as shown.
3. Using flat-tip screwdriver, unscrew and open two clamps (5).
4. Thread clamps (5) under protective cover of personnel heater (4) and through brackets (1).
5. Using flat-tip screwdriver, tighten clamps (5).

END OF TASK



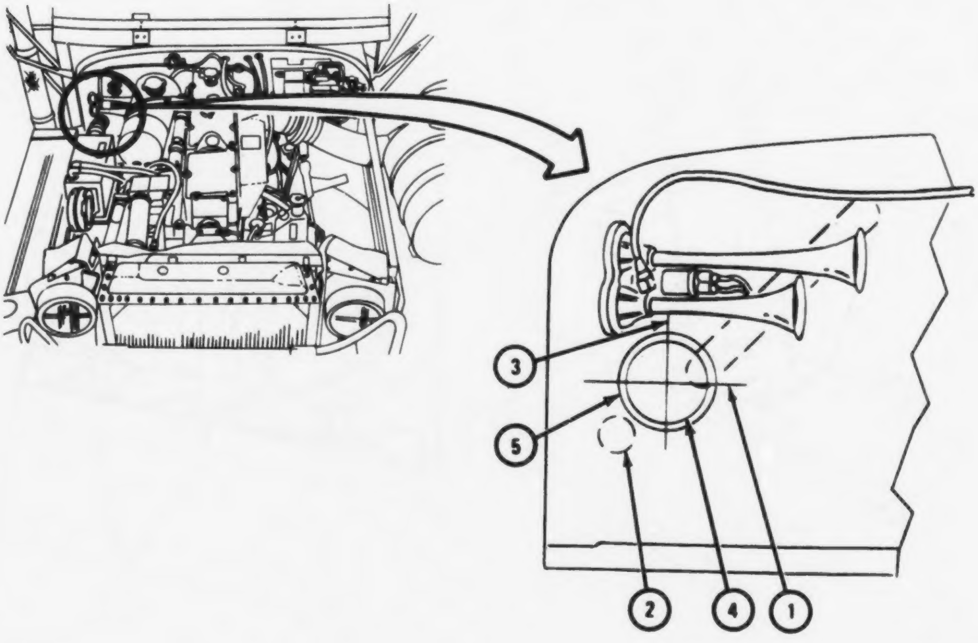
TA 081435

d. Installation of Ducting and Diverter.

FRAME 1

1. Using ruler and scribe, draw line (1). Line is level with floor and 2 7/16 inches above center line of knockout (2).
2. Using ruler and scribe, draw line (3). Line is straight up and down and 2 7/16 inches to right of center line of knockout (2).
3. Using scribe, draw circles (4 and 5). Circle (4) has a diameter of 4 1/8 inches with center where lines (1 and 3) meet. Circle (5) has a diameter of 5 inches with center where lines (1 and 3) meet.

GO TO FRAME 2

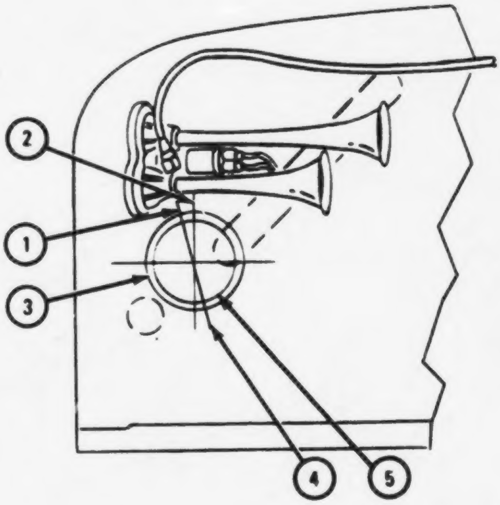


TA 081412

FRAME 2

1. Using ruler and scribe, mark point (1) 5/16 inch to left of line (2) and on outer circle (3).
2. Using ruler and scribe, mark point (4) 5/16 inch to right of line (2) and on outer circle (3).
3. Using drill and 3/16-inch bit, drill hole at points (1 and 4).
4. Using cutter, cut firewall along inner circle (5).

GO TO FRAME 3

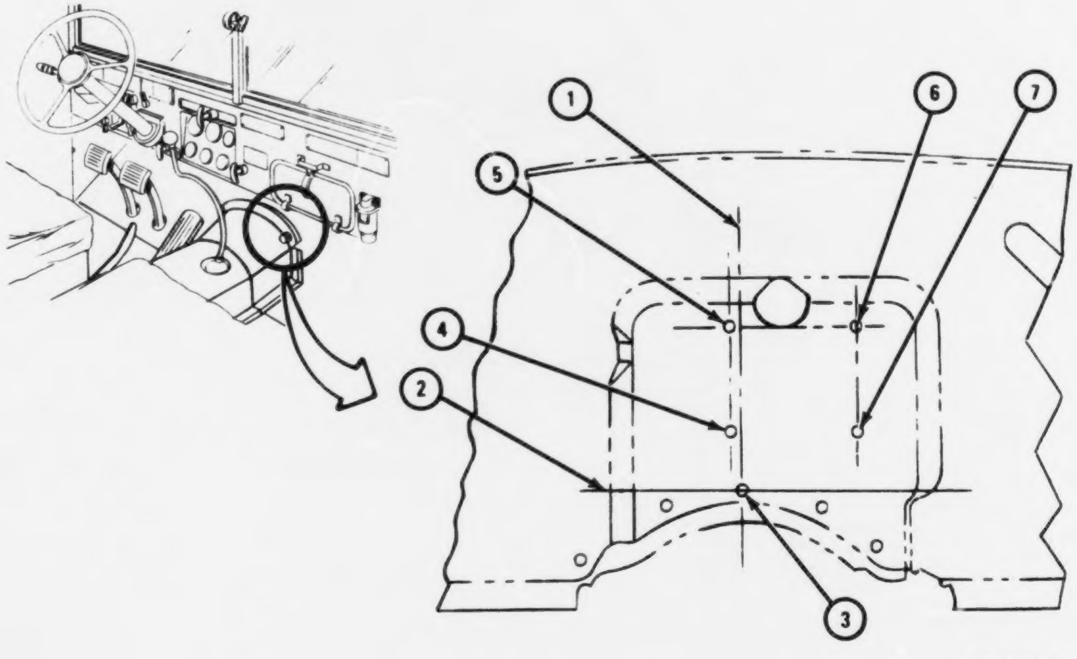


TA 081413

FRAME 3

1. Working in cab using ruler and scribe, draw lines (1 and 2) on firewall. Line (1) is straight up and down from transmission tunnel center mounting screw (3). Line (2) is level with cab floor and goes through transmission tunnel center mounting screw.
2. Using ruler and scribe, mark firewall at point (4). Point is 1/2 inch to left of line (1) and 2 3/4 inches above line (2).
3. Using ruler and scribe, mark firewall at point (5). Point is 1/2 inch to left of line (1) and 7 13/16 inches above line (2).
4. Using ruler and scribe, mark firewall at point (6). Point is 5 3/16 inches to right of line (1) and 7 13/16 inches above line (2).
5. Using ruler and scribe, mark firewall at point (7). Point is 5 3/16 inches to right of line (1) and 2 3/4 inches above line (2).
6. Using drill and 5/16-inch bit, drill holes at points (4, 5, 6, and 7).

GO TO FRAME 4



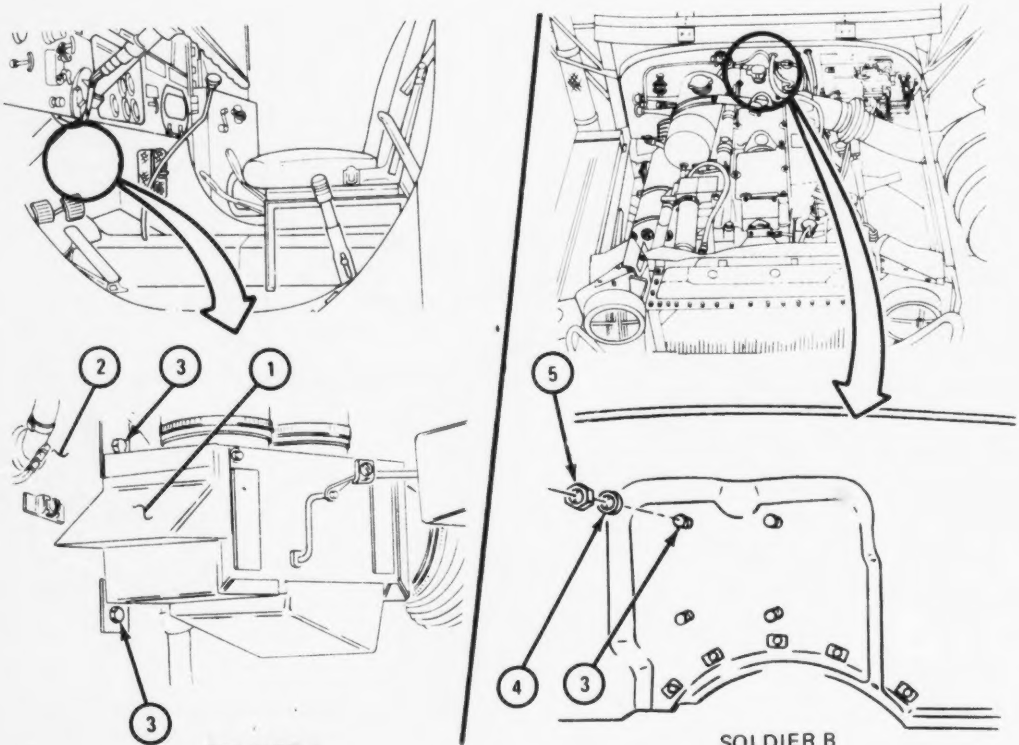
TA 081414

FRAME 4

Soldier A 1. Working in cab, hold diverter (1) in place on firewall (2) using wrench, and put in and hold four screws (3).

Soldier B 2. Working in engine compartment and using wrench, screw on and tighten four washers (4) and nuts (5) on screws (3).

GO TO FRAME 5



SOLDIER A

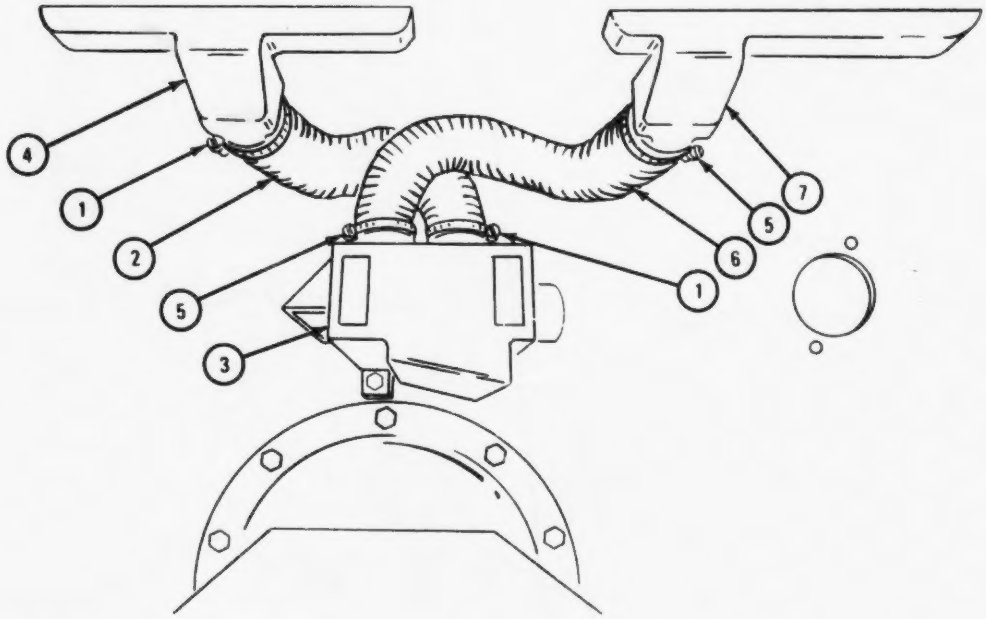
SOLDIER B

TA 081436

FRAME 5

1. Put two clamps (1) in place on 32-inch hose (2).
2. Put hose (2) on ports on diverter (3) and deflector (4) as shown.
3. Using flat-tip screwdriver, tighten two clamps (1).
4. Put two clamps (5) on 25-inch hose (6).
5. Put hose (6) on ports on diverter (3) and deflector (7).
6. Using flat-tip screwdriver, tighten two clamps (1).

GO TO FRAME 6



TA 081416

FRAME 6

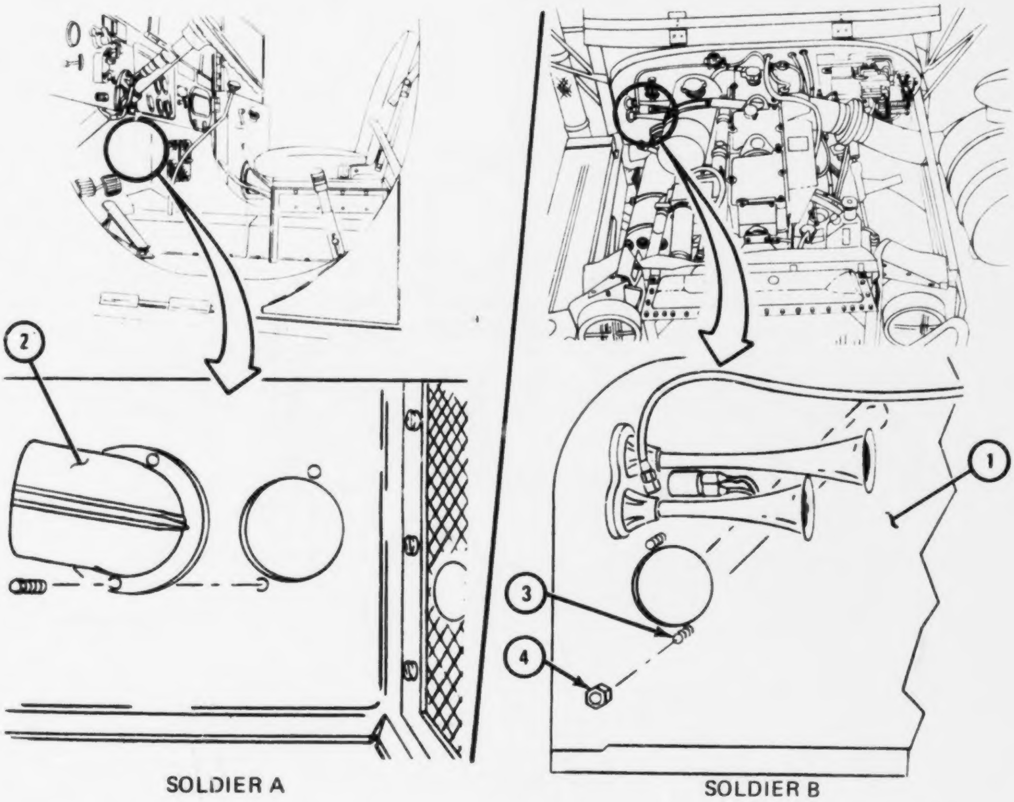
Soldier B 1. Working in engine compartment, hold wood block against sunken area of firewall (1).

Soldier A 2. Working in cab using hammer, flatten raised area of firewall (1).

3. Hold adapter assembly (2) in place on firewall (1). Using wrench, put in and hold two screws (3).

Soldier B 4. Using wrench, screw on and tighten two nuts (4) on screws (3).

GO TO FRAME 7



SOLDIER A

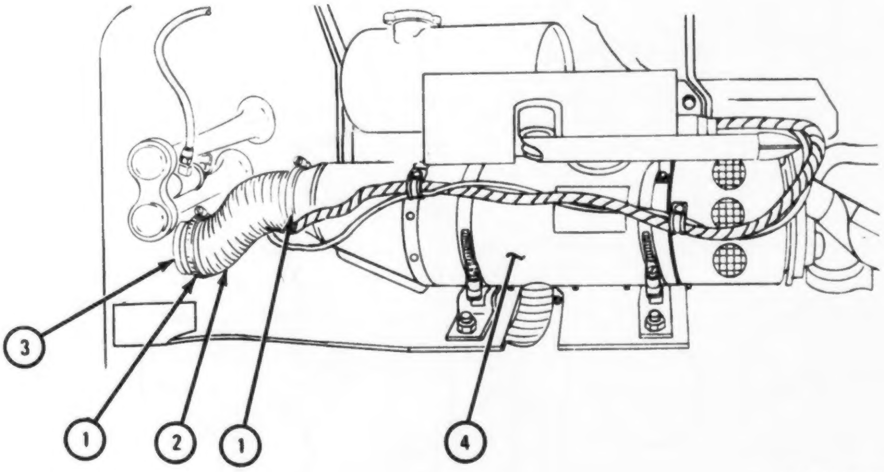
SOLDIER B

TA 081437

FRAME 7

1. Put two clamps (1) on 17 1/2-inch hose (2).
2. Put hose (2) on adapter assembly (3) and heater (4).
3. Using flat-tip screwdriver, tighten two clamps (1).

GO TO FRAME 8

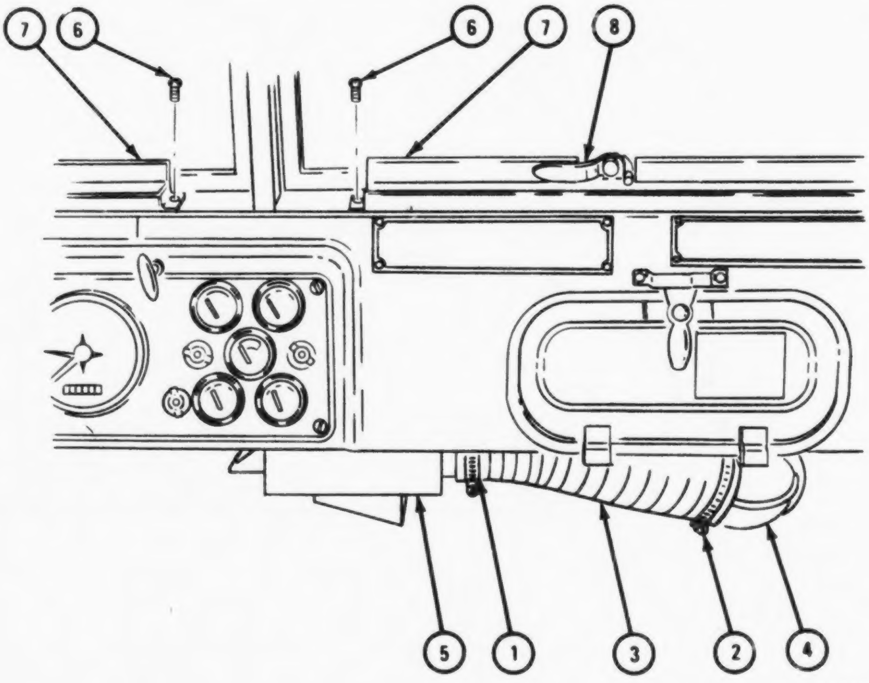


TA 081438

FRAME 8

1. Put clamps (1 and 2) on 19 1/2-inch hose (3).
2. Put hose (3) on adapter assembly (4) and diverter (5).
3. Using flat-tip screwdriver, tighten clamps (1 and 2).
4. Using phillips screwdriver, unscrew and take out four screws (6).
5. Put two deflectors (7) in place on top of instrument panel under window handles (8).
6. Using flat-tip screwdriver, screw in and tighten four screws (6).

END OF TASK

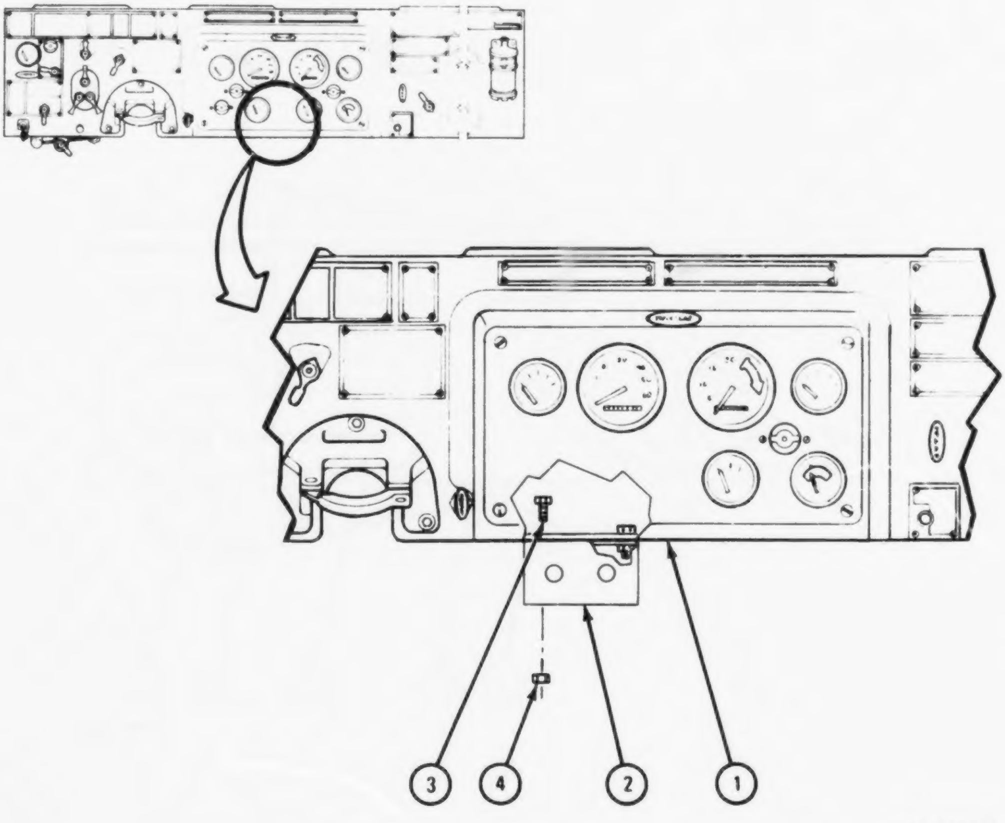


e. Installation of Control Cables.

FRAME 1

1. Using drill and 13/64-inch bit, drill hole in lower flange of instrument panel (1) 21 15/32 inches to right of left edge of instrument panel.
2. Using drill and 13/64-inch bit, drill hole in lower flange of instrument panel (1) two inches to right of hole drilled in step 1.
3. Hold control cable bracket (2) in place on lower flange of instrument panel (1) and put in two screws (3).
4. Using wrenches, screw on and tighten two nuts (4).

GO TO FRAME 2

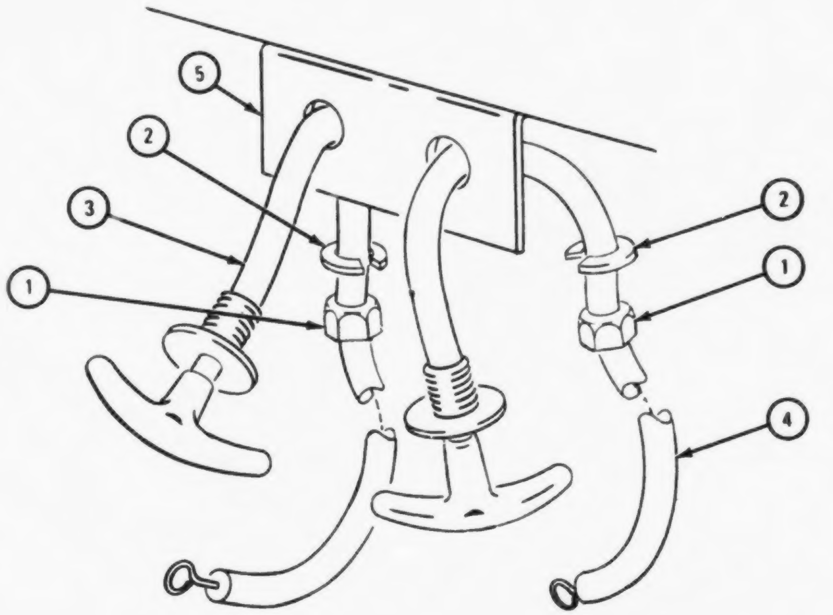


TA 081420

FRAME 2

1. Unscrew and take off two nuts (1) and lockwashers (2) from control cables (3 and 4).
2. Put 36-inch cable (3) into left hole in mounting bracket (5). Using wrench, screw on and tighten lockwasher (2) and nut (1).
3. Put 38 1/2-inch cable (4) into right hole in mounting bracket (5). Using wrench, screw on and tighten lockwasher (2) and nut (1).

GO TO FRAME 3

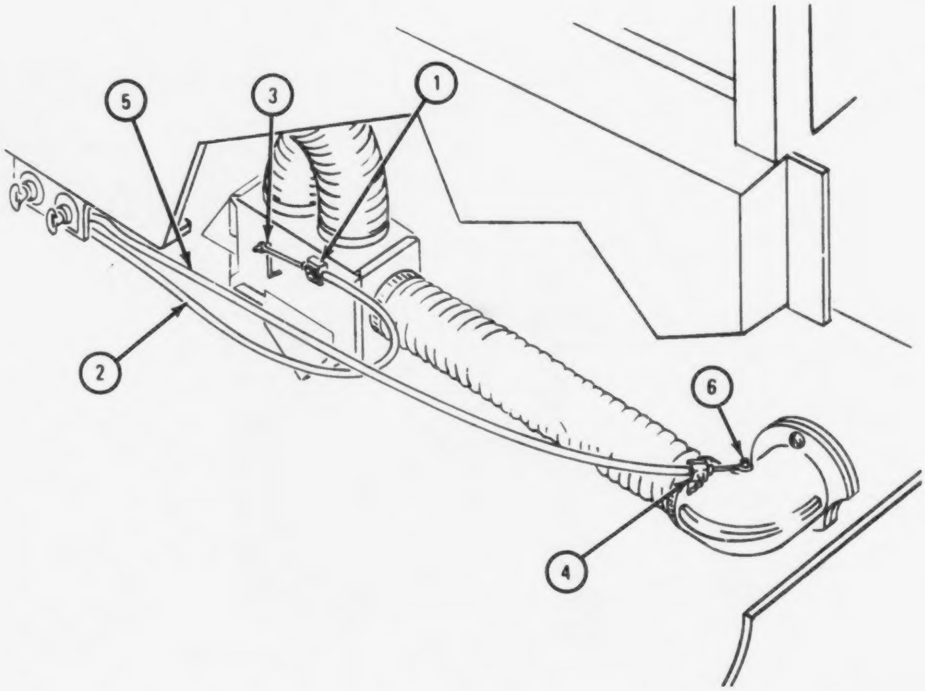


TA 081421

FRAME 3

1. Using phillips screwdriver, loosen clamp (1).
2. Put cable (2) through clamp (1) and on shaft (3) as shown.
3. Using phillips screwdriver, tighten clamp (1).
4. Using phillips screwdriver, loosen clamp (4).
5. Put cable (5) through clamp (4) and on shaft (6) as shown.
6. Using phillips screwdriver, tighten clamp (4).

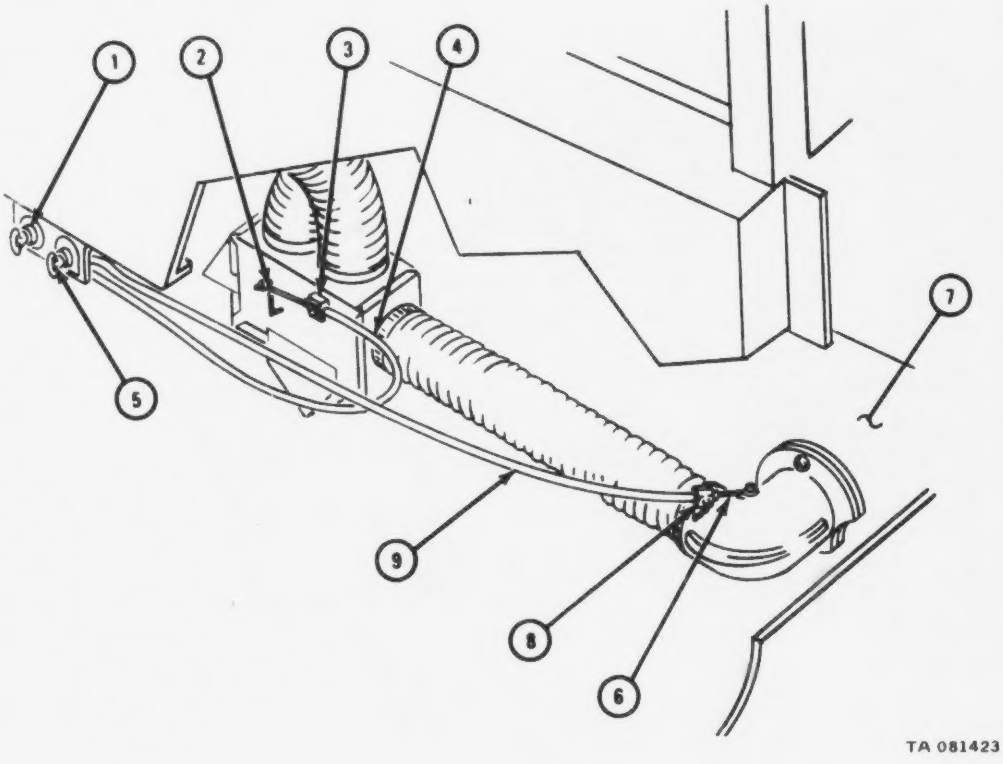
GO TO FRAME 4



FRAME 4

1. Pull out DEFROSTER handle (1) and check that shaft (2) moved all the way to the right.
2. If shaft (2) did not move all the way to the right, using phillips screwdriver, loosen clamp (3). Slide cable (4) to right to take up slack. Using phillips screwdriver, tighten clamp.
3. Push in DEFROSTER handle (1).
4. Pull out AIR handle (5) and check that shaft (6) moved all the way out from firewall (7).
5. If shaft (6) did not move all the way out from firewall (7), using phillips screwdriver, loosen clamp (8). Slide cable (9) out to take up slack. Using phillips screwdriver, tighten clamp.

END OF TASK

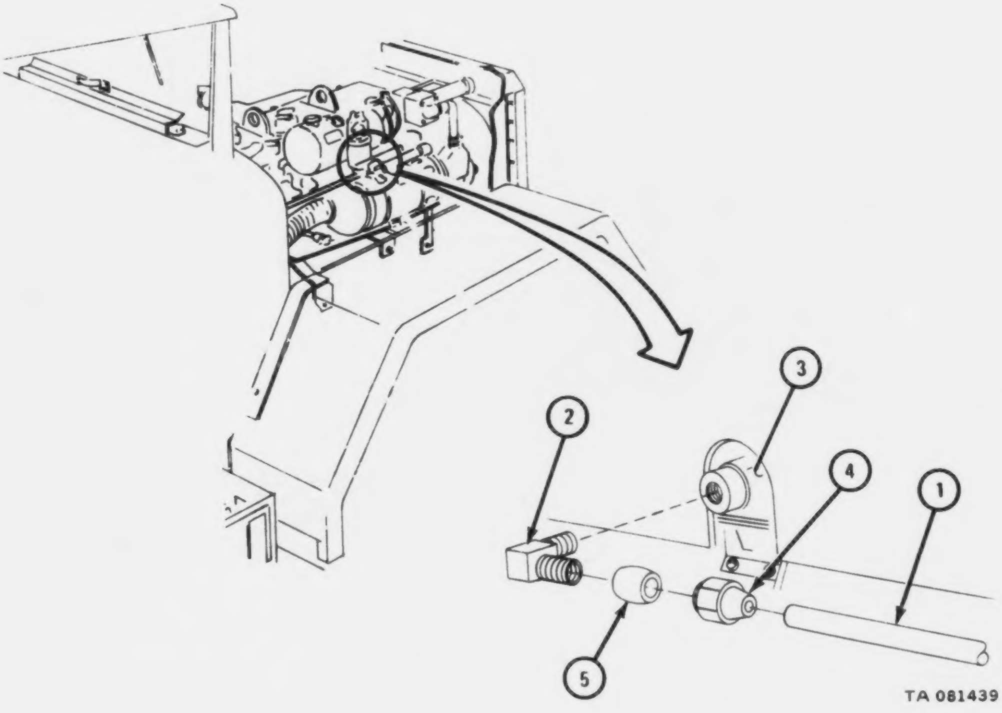


f. Installation of Fuel Line and Exhaust Tube.

FRAME 1

1. Route fuel line (1) from engine compartment back to battery compartment.
2. Using adjustable wrench, screw in and tighten elbow (2) into personnel heater (3).
3. Slide compression nut (4) and ferrule (5) on fuel line (1).
4. Hold fuel line (1) in place on elbow (2) and using wrench, screw on and tighten compression nut (4).

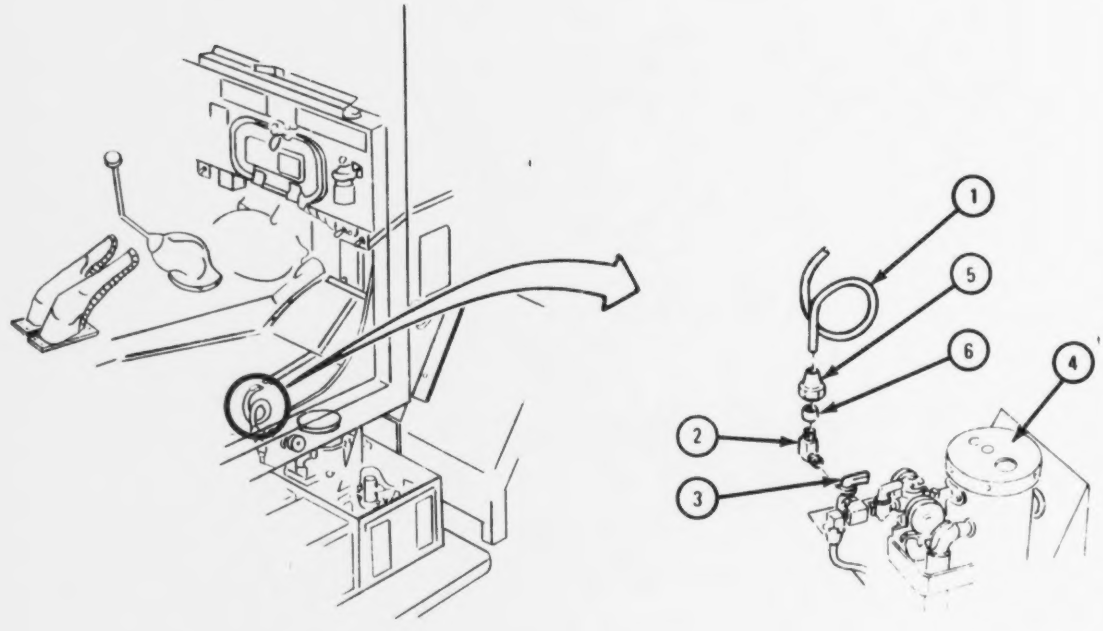
GO TO FRAME 2



FRAME 2

1. Open battery compartment. Refer to TM 9-2320-260-10.
2. Pull fuel line (1) through rear of battery compartment.
3. Using adjustable wrench, screw elbow (2) into shutoff cock (3) on engine coolant heater (4) and tighten.
4. Slide compression nut (5) and ferrule (6) on fuel line (1).
5. Hold fuel line (1) on elbow (2) and tighten compression nut (5).
6. Turn handle to right on shutoff cock (3) to open.

END OF TASK



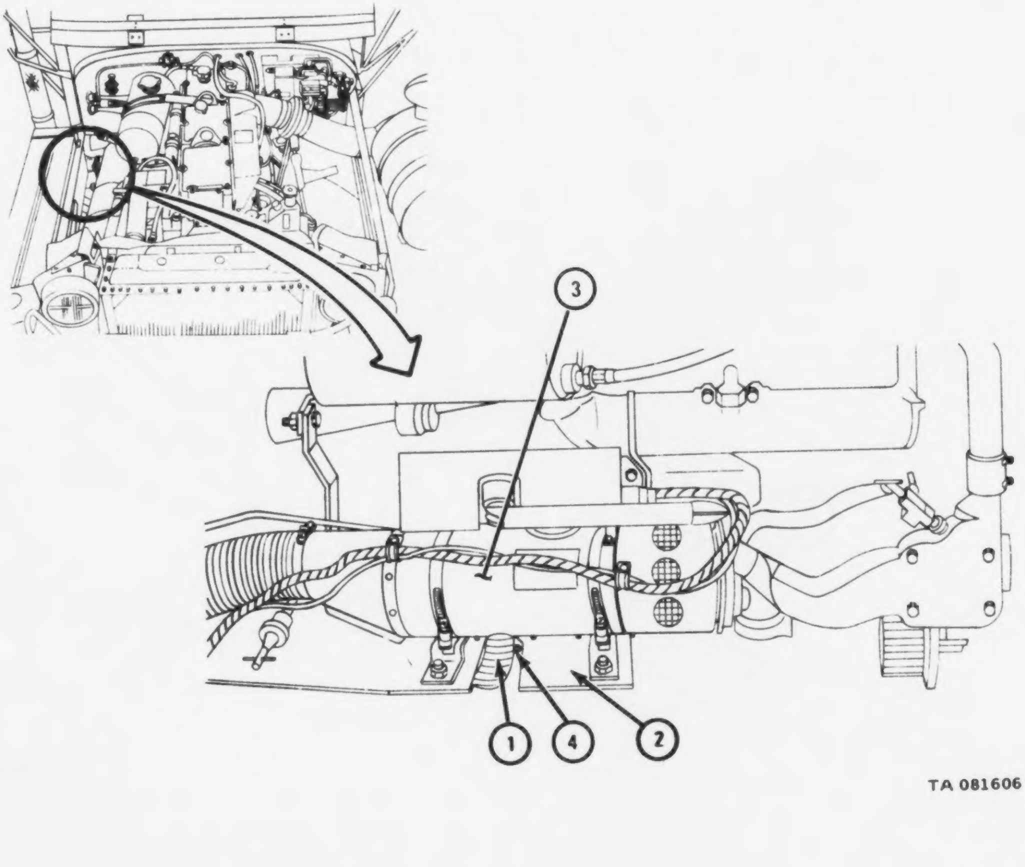
TA 081440

g. Installation of Exhaust Tube.

FRAME 1

1. Slide exhaust tube (1) into slot in support bracket (2) and onto port on heater (3). Aline holes in hose (1) and heater (3).
2. Using pliers, put in and open ends of cotter pin (4).

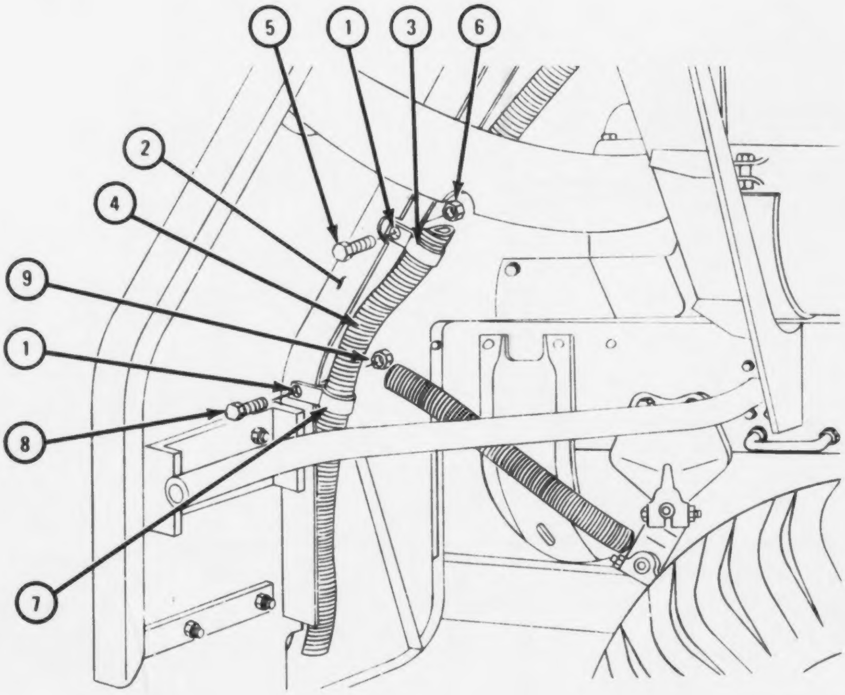
GO TO FRAME 2



FRAME 2

1. Using drill and 5/16-inch bit, drill holes at two points (1) in fender reinforcement (2) as shown.
2. Slide clamp (3) on exhaust tube (4) and hold clamp in place on upper hole in fender reinforcement (2).
3. Put in screw (5). Using wrenches, screw on and tighten nut (6).
4. Slide clamp (7) on exhaust tube (4) and hold clamp in place on lower hole in fender reinforcement (2).
5. Put in screw (8). Using wrenches, screw on and tighten nut (9).

END OF TASK

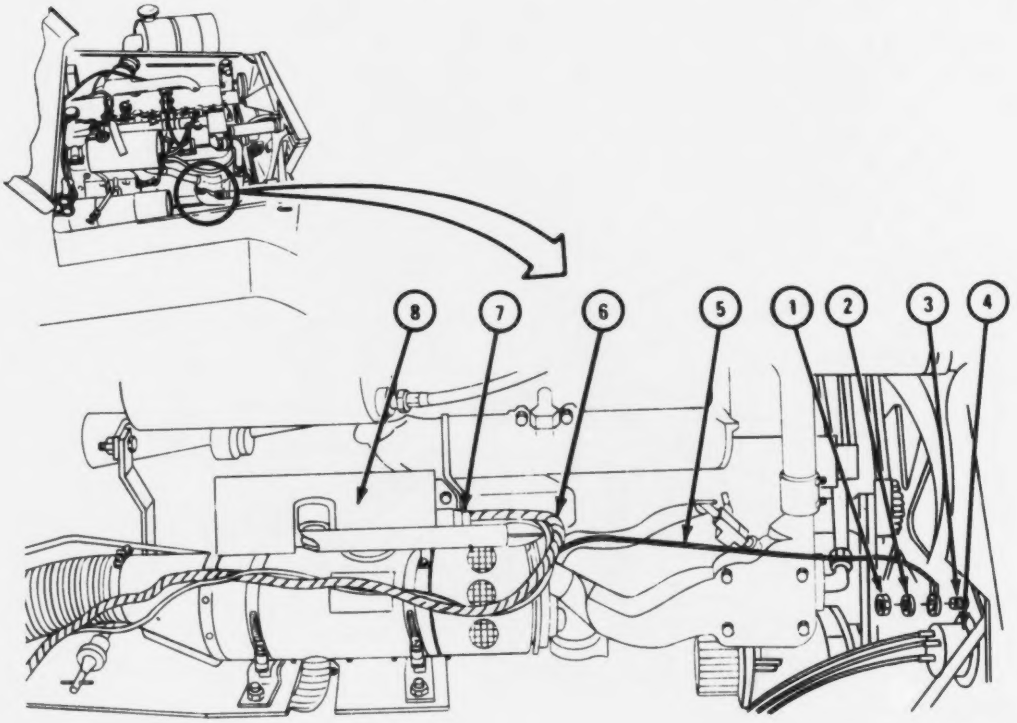


h. Installation of Electrical Harness.

FRAME 1

1. Using wrench, unscrew and take off nut (1) and lockwasher (2) from stud (3) on headlight lamp (4).
2. Put ground lead (5) of heater harness assembly (6) on stud (3).
3. Using wrench, screw on and tighten lockwasher (2) and nut (1).
4. Join electrical connection (7) to receptacle in personnel heater (8).

GO TO FRAME 2



FRAME 2

Soldier A 1. Push electrical lead (1) through grommet (2) in firewall to soldier B.

Soldier B 2. Join electrical lead (1) to control box (3).

3. Using wrench, hold screw (4).

Soldier A 4. Using wrench, unscrew and take off nut (5).

Soldier B 5. Take out screw (4). Put electrical lead (1) into clamp (6).

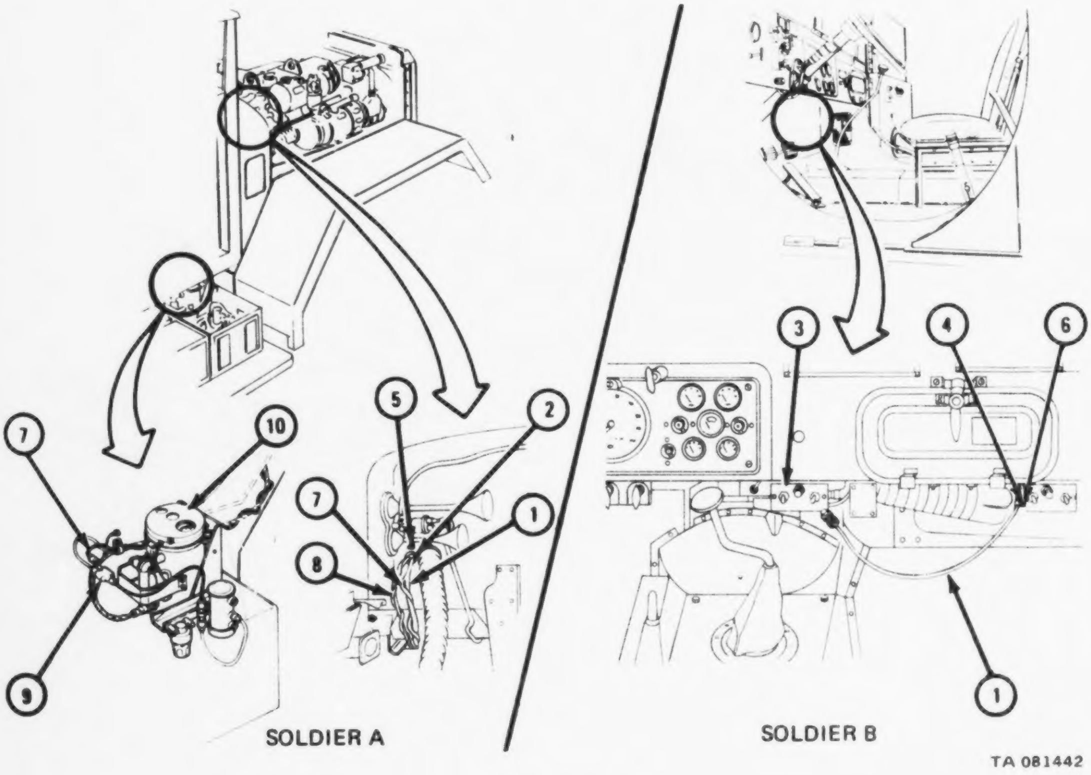
6. Using wrench, put in and hold screw (4).

Soldier A 7. Using wrench, screw on and tighten nut (5).

8. Wrap fuel pump lead (7) around engine coolant heater electrical harness (8) to Y-connection (9) at engine coolant heater (10).

9. Plug fuel pump lead (7) into Y-connection (9).

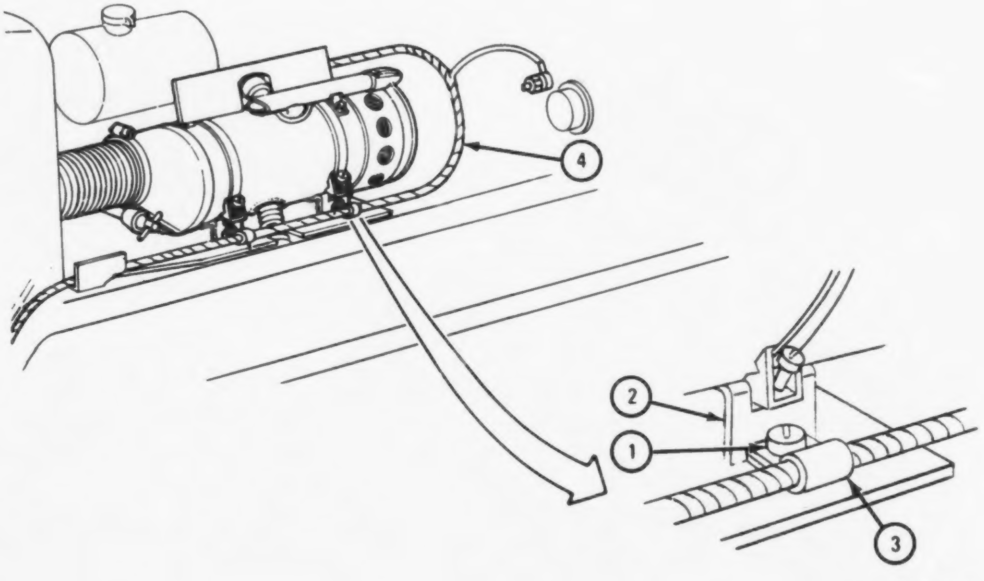
GO TO FRAME 3



FRAME 3

1. Using wrench, unscrew and take out two screws (1) from two personnel heater mounting brackets (2).
2. Put two clamps (3) around electrical harness (4) and in place on mounting brackets (2).
3. Using wrench, screw back in and tighten two screws (1).

END OF TASK

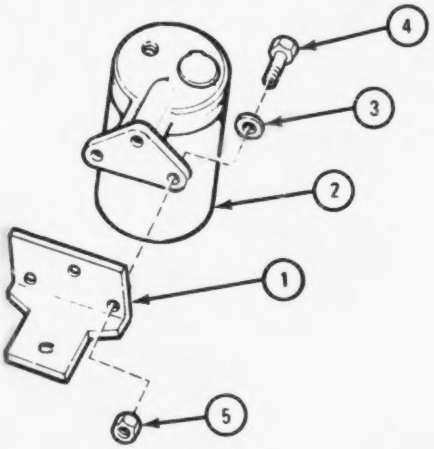


i. Installation of Alcohol Evaporator.

FRAME 1

1. Hold bracket (1) in place on evaporator (2) and put in three washers (3) and screws (4).
2. Using wrenches, screw on and tighten three nuts (5).

GO TO FRAME 2

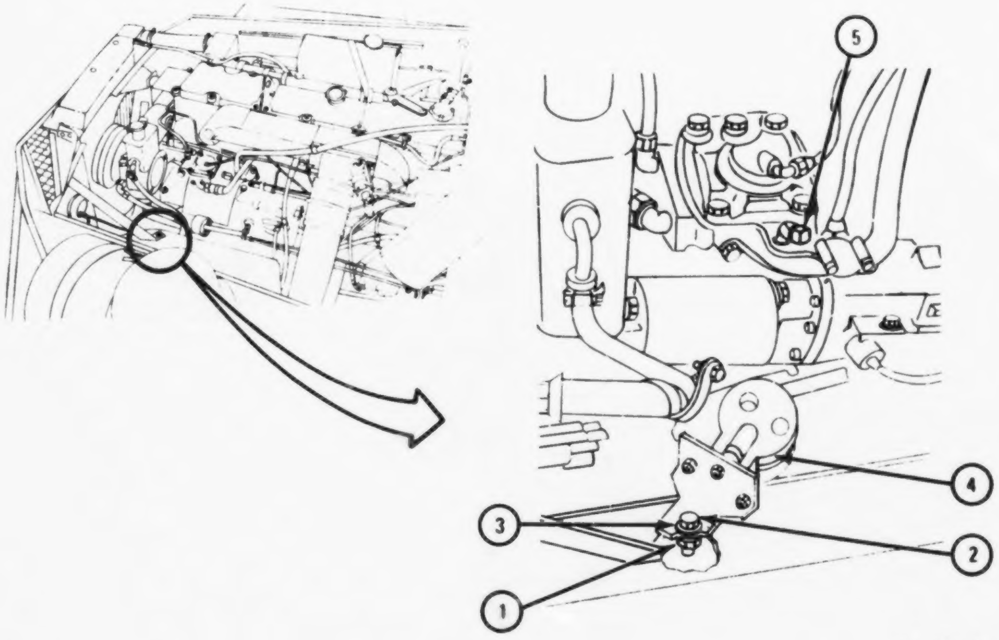


TA 081444

FRAME 2

1. Using wrenches, unscrew and take off nut (1).
2. Take out screw (2) and washer (3).
3. Hold evaporator assembly (4) in place and put in washer (3) and screw (2). Using wrenches, screw on and tighten nut (1).
4. Using wrench, unscrew and take out pipe plug (5).

GO TO FRAME 3

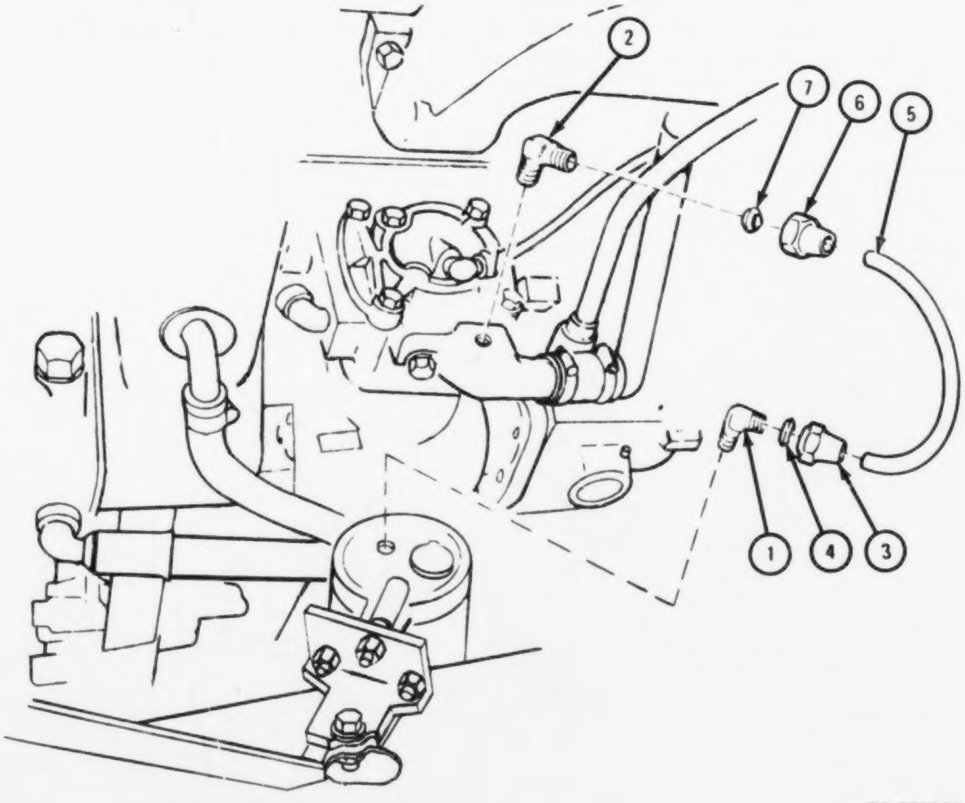


TA 081445

FRAME 3

1. Using adjustable wrench, screw in and tighten elbow (1).
2. Using adjustable wrench, screw in and tighten elbow (2).
3. Slide compression nut (3) and ferrule (4) on tube (5).
4. Hold tube (5) on elbow (1) and using wrench, tighten compression nut (3).
5. Slide compression nut (6) and ferrule (7) on tube (5).
6. Hold tube (5) on elbow (2) and using wrench, tighten compression nut (6).

END OF TASK



j. Installation of Lever Boot and Cover Assemblies.

FRAME 1

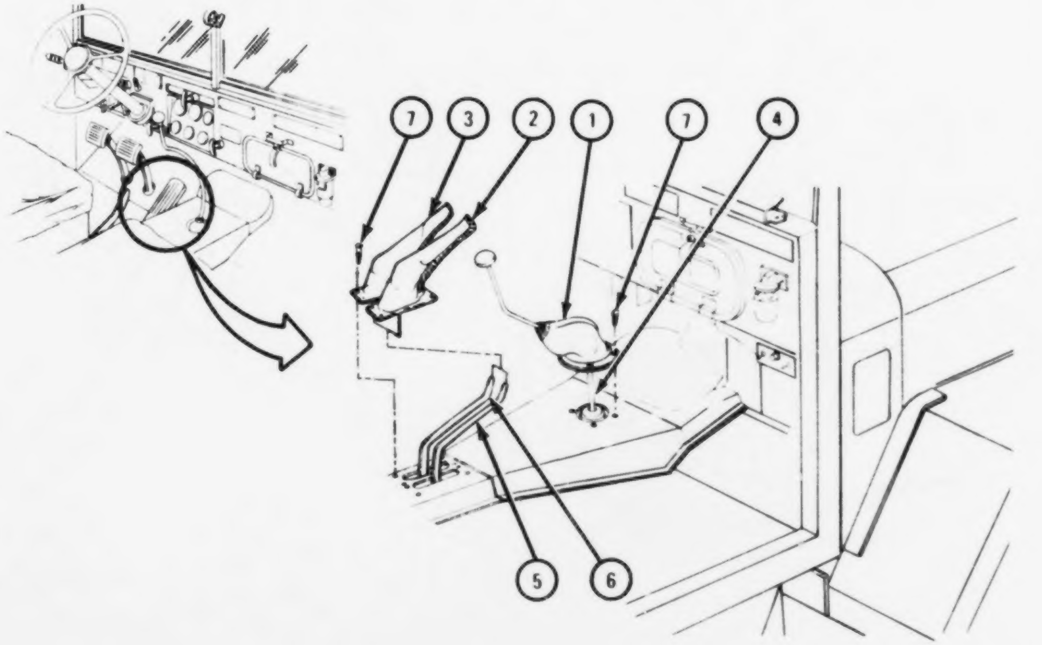
1. Slide boots (1, 2, and 3) over levers (4, 5, and 6) as shown.
2. Center boots (1, 2, and 3) and using scribe, mark location of mounting holes.
3. Take off boots (1, 2, and 3).
4. Using drill and 9/64-inch bit, drill 12 holes at scribe marks.
5. Slide boots (1, 2, and 3) on levers (4, 5, and 6) and aline holes.
6. Using flat-tip screwdriver, screw in and tighten 12 screws (7).

NOTE

Follow-on Maintenance Action Required:

1. Replace thermal barrier. Refer to TM 9-2320-260-20.
2. Close battery compartment. Refer to TM 9-2320-260-10.
3. Operate and check fuel burning personnel heater for proper operation. Refer to TM 9-2320-260-10.

END OF TASK



19-8. FUEL BURNING PERSONNEL HEATER REPAIR.

TOOLS:
13/16-inch wrench
9/16-inch wrench
1/2-inch wrench
7/16-inch wrench
5/16-inch wrench
11/32-inch wrench
3/32-inch sockethead screw key (Allen wrench or equivalent)
Screen remover
Test light
Eye shields
1/4-inch wrench
Scraper
Long nose pliers
Ohmmeter
Flat-tip screwdriver
Cross-tip screwdriver (Phillips type)

SUPPLIES:
Solvent, dry cleaning, type II (SD-2), Fed. Spec P-D-680
Clean rags
Bond paper
Compressed air source, 30 psi max

PERSONNEL: One

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedure. Remove fuel burning heater. Refer to para 19-7.

b. Disassembly.

NOTE

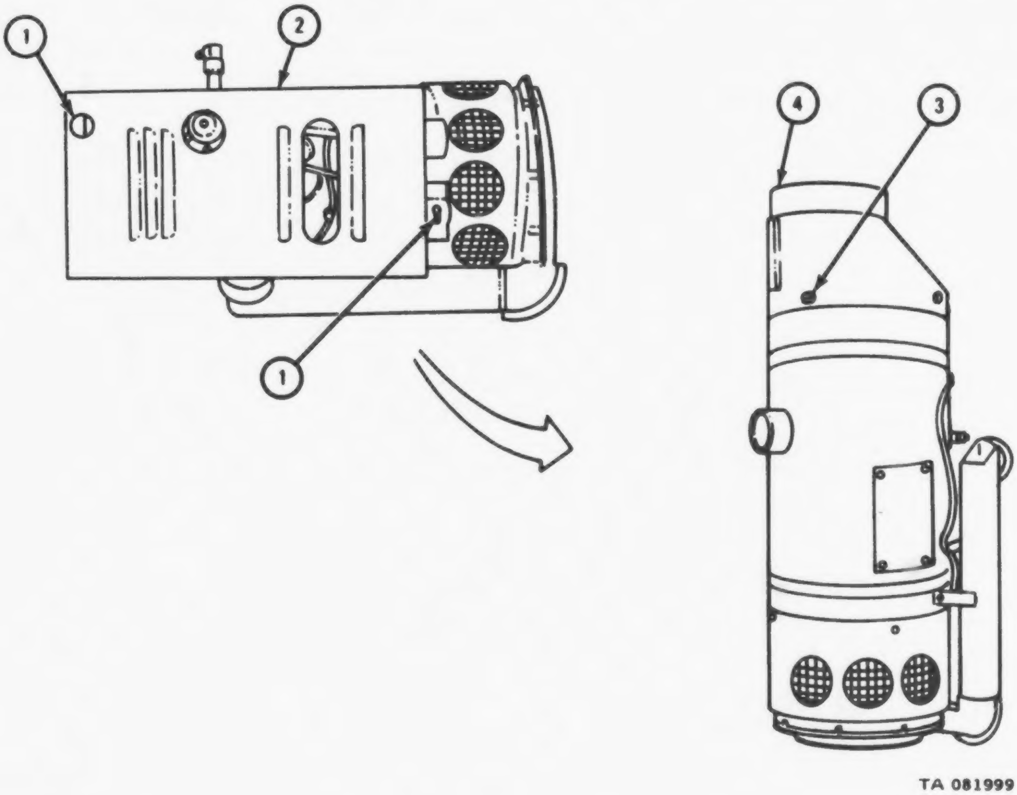
Tag all electrical leads before taking them off so that they are put back in the right place.

(1) Removal of guard.

FRAME 1

1. Loosen two spring loaded fasteners (1). Take off guard (2).
2. Using phillips screwdriver, unscrew and take out four screws and washers (3). Take off air duct (4).

END OF TASK

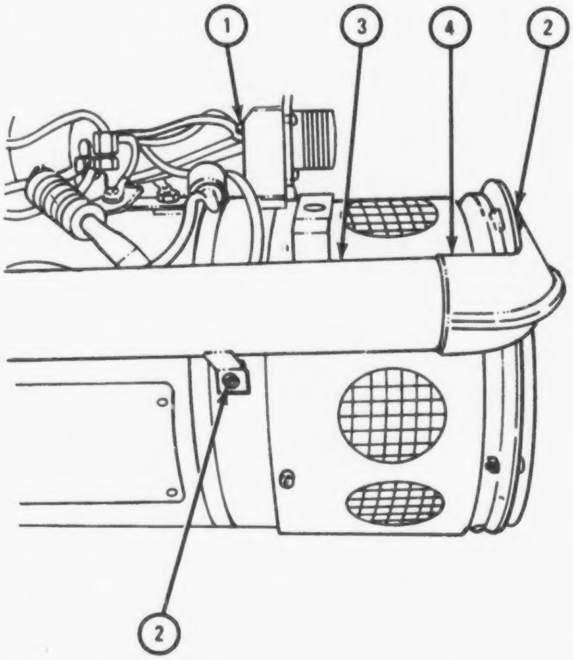


(2) Removal of air valve.

FRAME 1

1. Using flat-tip screwdriver, unscrew and take out screw (1) and two screws (2).
2. Take off air valve (3) and elbow (4).

END OF TASK



TA 082000

(3) Removal of blower.

FRAME 1

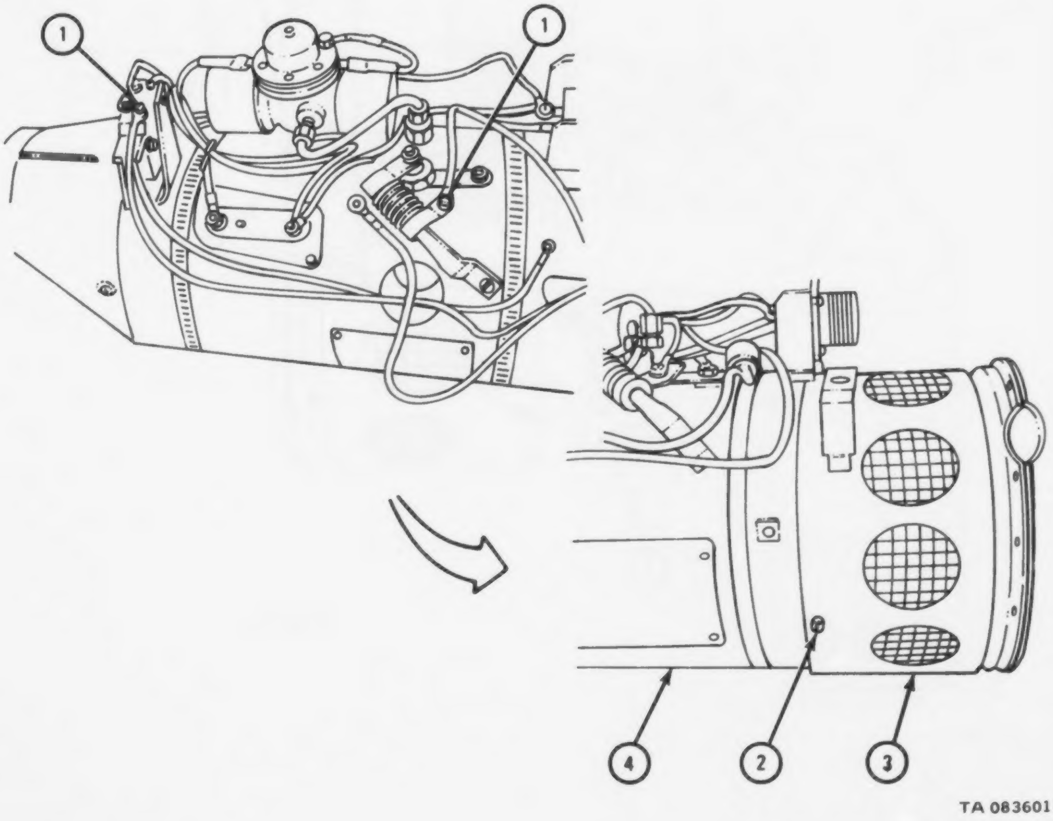
1. Using flat-tip screwdriver, unscrew and take out two screws (1).
2. Using flat-tip screwdriver, unscrew and take out four screws (2).

CAUTION

Ventilating air wheel is exposed when blower (3) is taken out. Handle blower carefully so that wheel is not damaged. Ventilating air wheel is made of soft metal and can be easily bent out of shape, making it useless.

3. Pull blower (3) straight off of housing (4).

END OF TASK

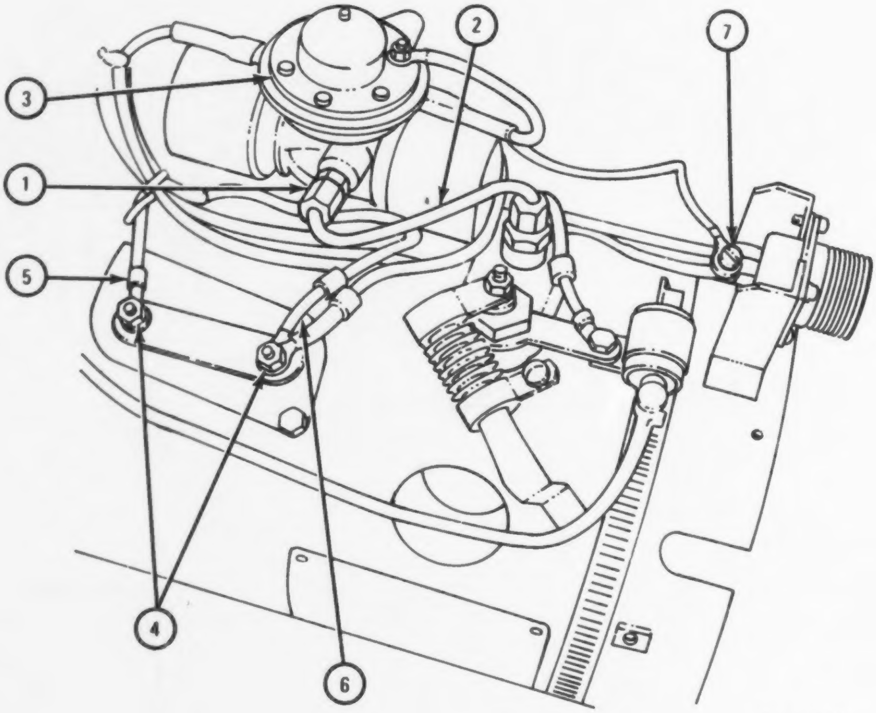


(4) Removal of fuel control valve.

FRAME 1

1. Using 7/16-inch wrench, unscrew and slide back coupling nut (1). Take end of tube (2) out of fuel control valve (3).
2. Using 5/16-inch wrench, unscrew and take off two nuts and washers (4). Take off wire leads (5 and 6).
3. Using flat-tip screwdriver, unscrew and take out screw (7).

GO TO FRAME 2

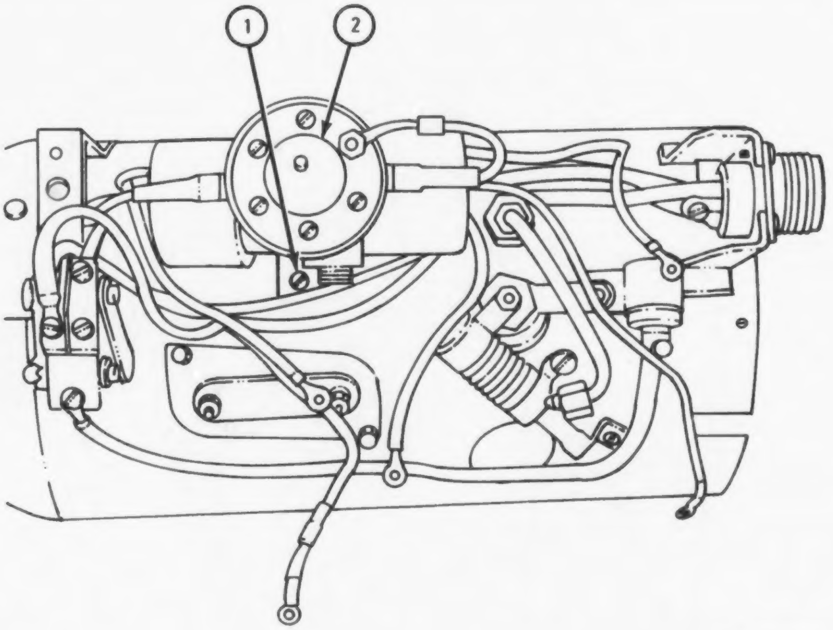


TA 083602

FRAME 2

1. Using flat-tip screwdriver, unscrew and take out three screws (1).
2. Take off fuel control valve (2).

END OF TASK



TA 083603

(5) Removal of flame detector switch.

FRAME 1

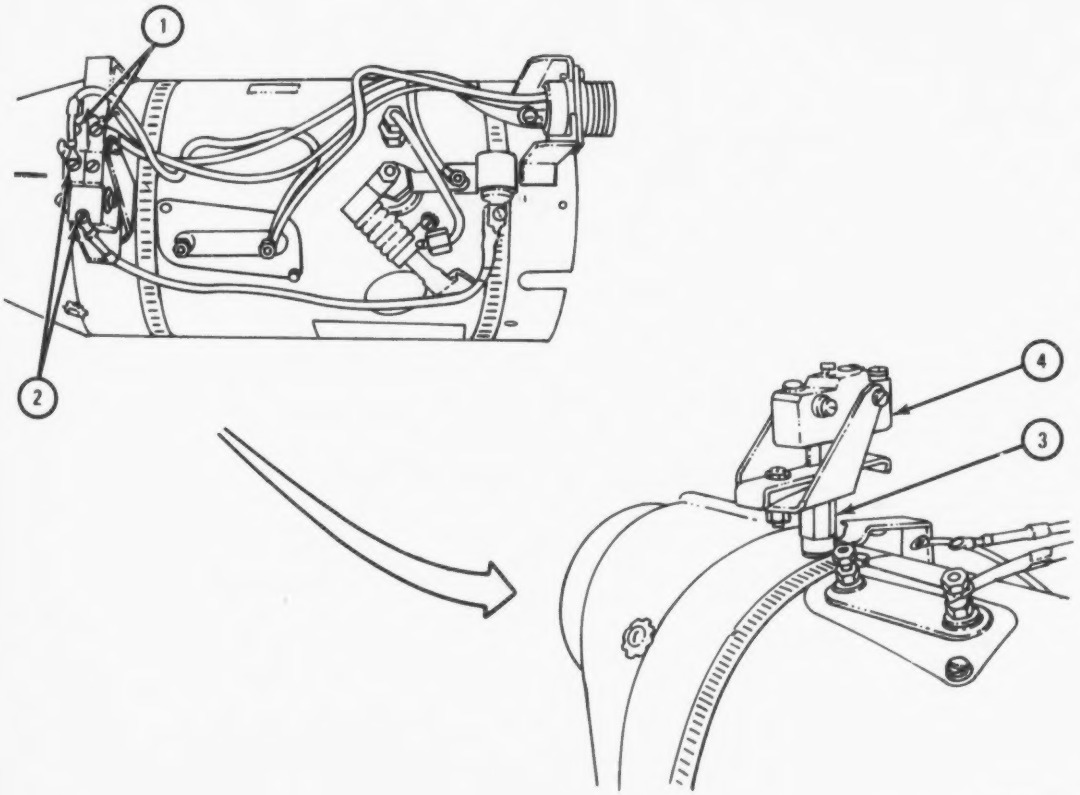
1. Using flat-tip screwdriver, unscrew and take out two screws (1).
2. Using flat-tip screwdriver, unscrew and take out two screws (2).

NOTE

> Be careful when taking out flame detector switch (4).
> Ceramic rod can be damaged and will not be useful.

3. Using 1/2-inch wrench, unscrew fitting (3) and take out flame detector switch (4).

END OF TASK



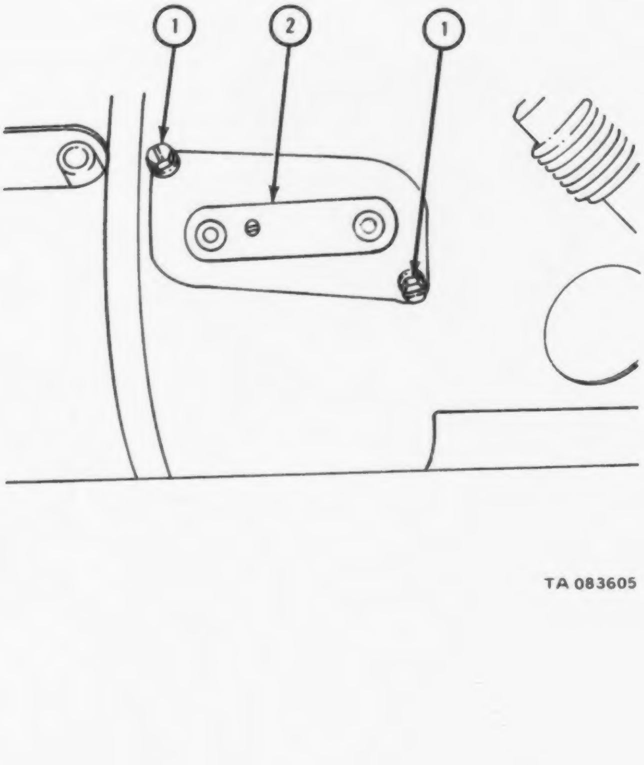
TA 083604

(6) Removal of overheat switch.

FRAME 1

1. Using flat-tip screwdrivers, unscrew and take out two screws (1).
2. Take off overheat switch (2).

END OF TASK



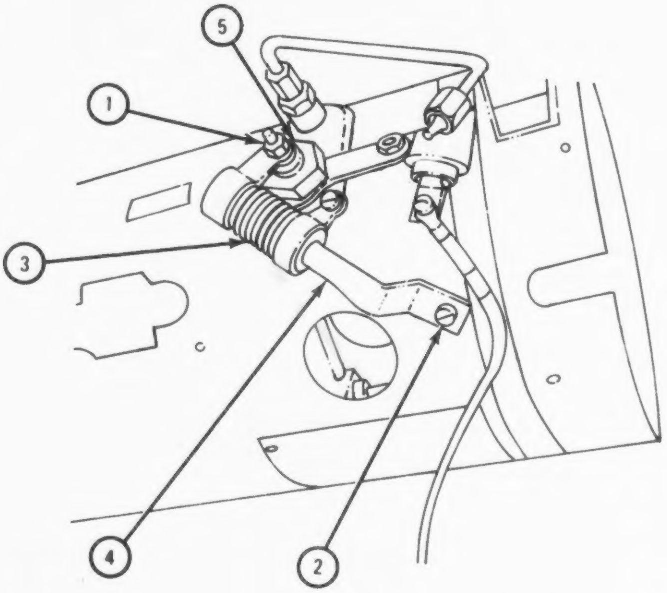
TA 083605

(7) Removal of ignitor.

FRAME 1

1. Using 11/32-inch wrench, loosen nut (1).
2. Using flat-tip screwdriver, unscrew and take out screw (2).
3. Take off resistor (3) and bracket (4).
4. Using 13/16-inch wrench, unscrew and take out ignitor (5).

GO TO FRAME 2

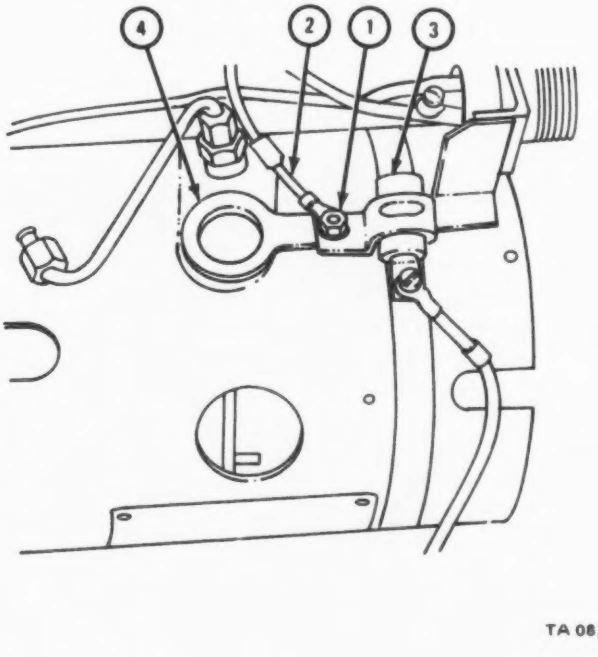


TA 083606

FRAME 2

1. Using 11/32-inch wrench, unscrew and take off nut (1).
2. Take off ground terminal (2), capacitor (3), and terminal (4).

END OF TASK



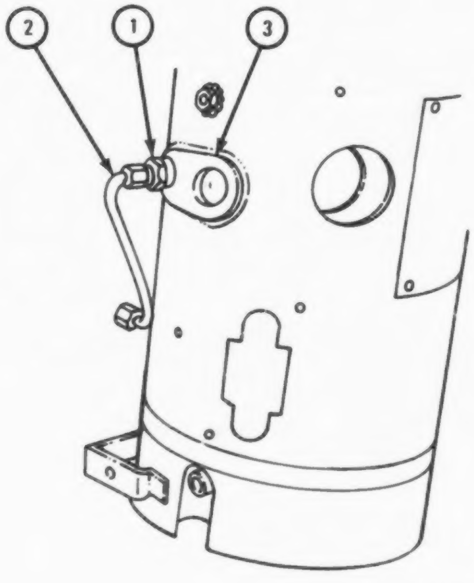
TA 083607

(8) Removal of fuel line and hatch cover.

FRAME 1

1. Using 9/16-inch wrench, unscrew fitting (1). Take out fuel line (2).
2. Take off hatch cover (3).

END OF TASK



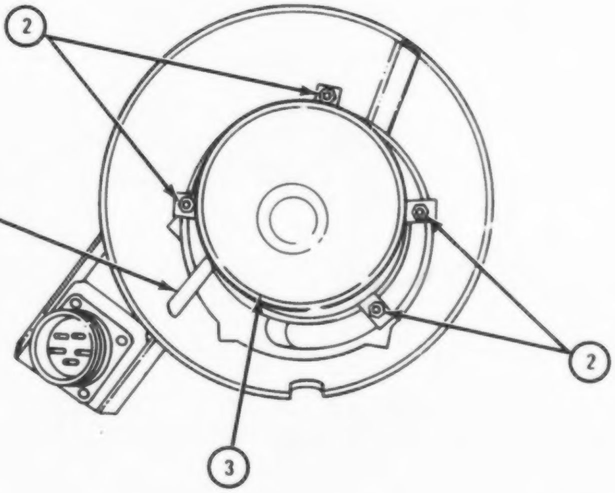
TA 083609

(9) Removal of combustion air housing.

FRAME 1

1. Using pipe wrench, unscrew and take out nipple (1).
2. Using 11/32-inch wrench, unscrew and take out four screws and clamps (2). Take off combustion air housing (3).

END OF TASK



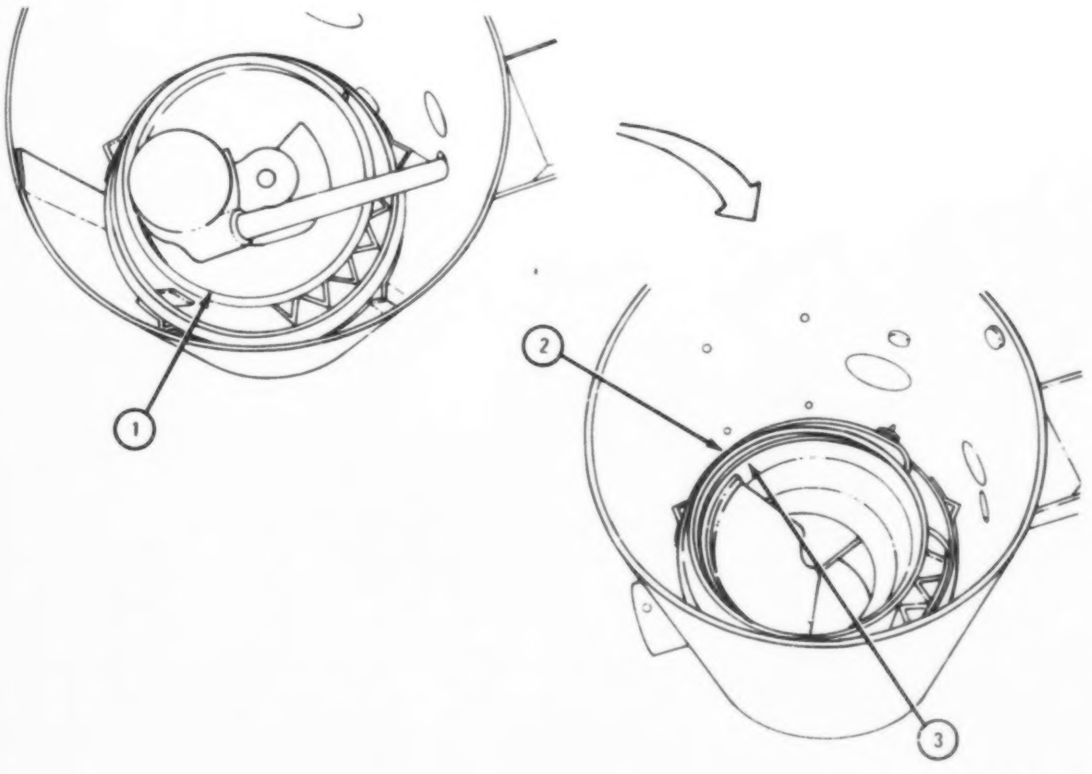
TA 083608

(10) Removal of burner.

FRAME 1

1. Take off burner (1), preformed packing (2), and gasket (3). Throw away preformed packing and gasket.

END OF TASK



(11) Removal of housing.

FRAME 1

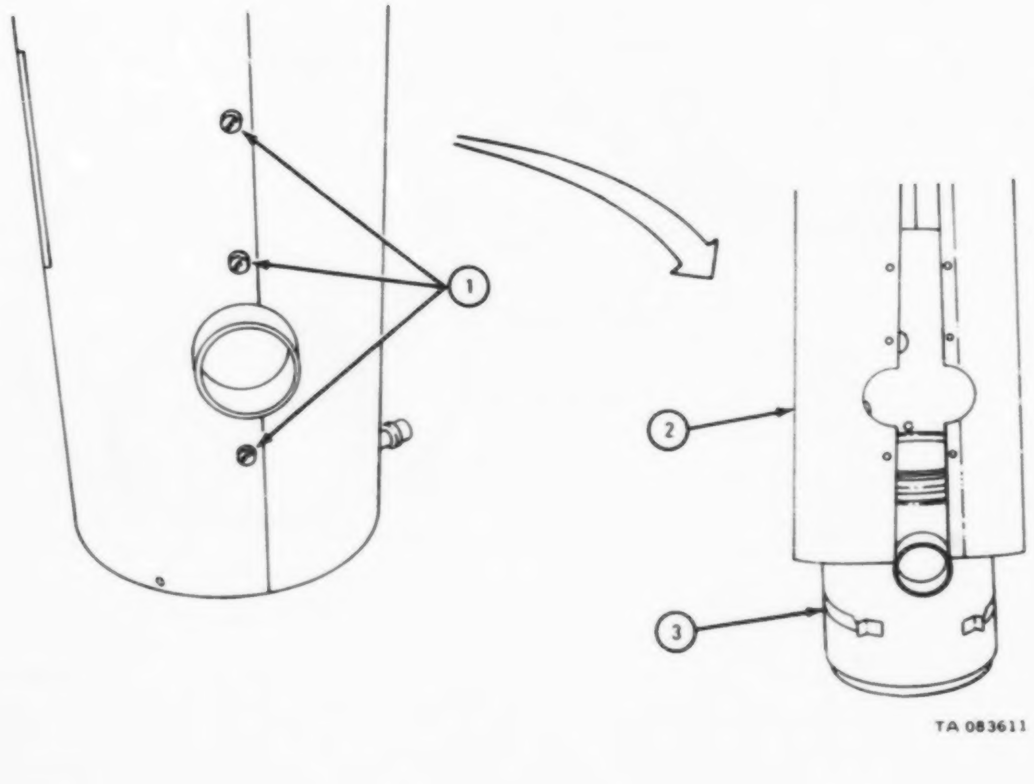
1. Using flat-tip screwdriver, unscrew and take out three screws (1).

CAUTION

When spreading apart housing (2), be careful not to damage housing by distorting or bending it.

2. Spread apart housing (2) enough to take out heat exchanger (3). Take out heat exchanger.

END OF TASK

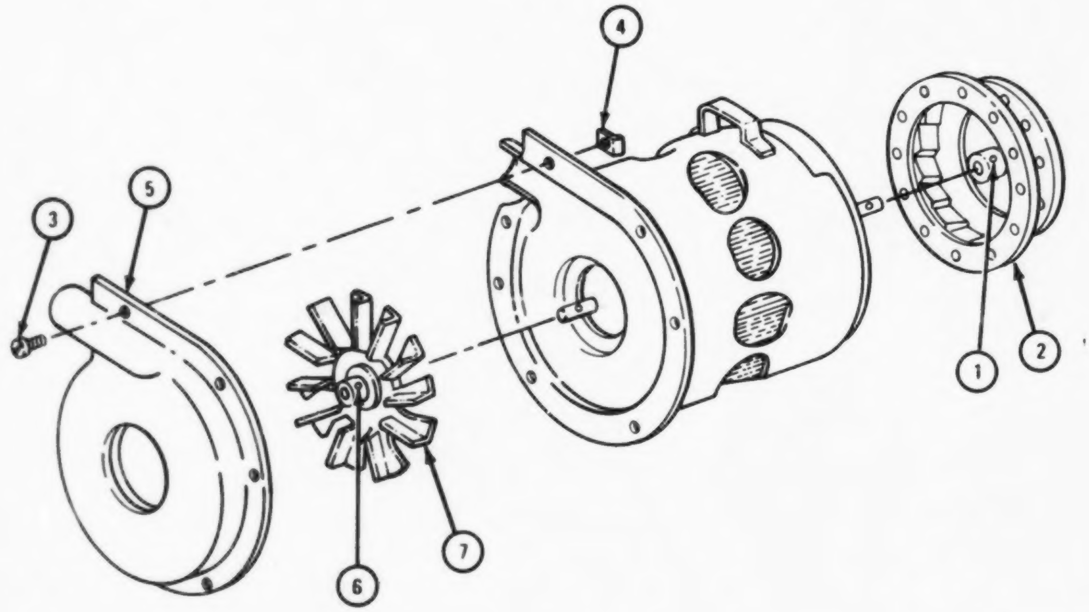


(12) Disassembly of blower.

FRAME 1

1. Using 3/32-inch allen wrench, loosen setscrew (1). Take off ventilating blower wheel (2).
2. Using flat-tip screwdriver, unscrew and take out seven screws (3) and speed nuts (4). Take off combustion blower housing (5).
3. Using 3/32-inch allen wrench, loosen setscrew (6). Take off combustion air blower wheel (7).

GO TO FRAME 2

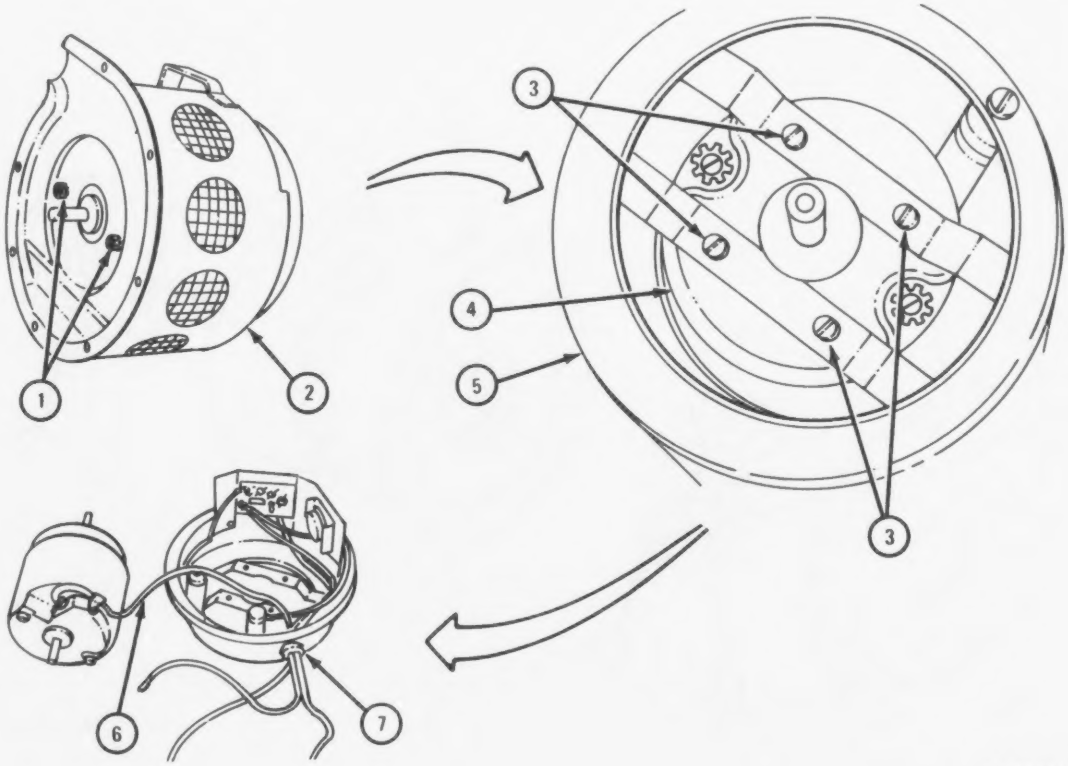


TA 083612

FRAME 2

1. Using 11/32-inch wrench, unscrew and take off two nuts (1).
2. Take off housing and motor assembly (2).
3. Using flat-tip screwdriver, unscrew and take out four screws (3). Take motor (4) out of housing (5).
4. Pull wire (6) out of grommet (7).

END OF TASK



TA 083613

(13) Disassembly of fuel control valve.

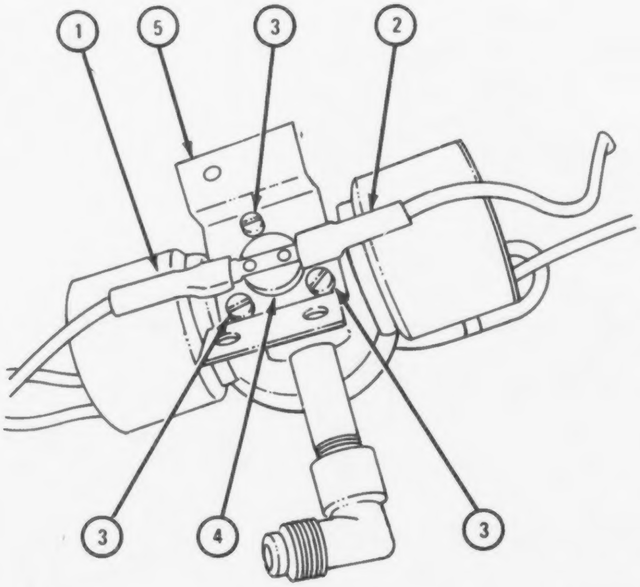
CAUTION

Use clean tools and work on clean surface during this task. Do not let dust or dirt get into fuel control valve. Needle valve can become clogged or solenoid surfaces can leak.

FRAME 1

1. Unplug and take off leads (1 and 2).
2. Using flat-tip screwdriver, unscrew and take out three screws (3).
3. Take off clamp and thermostat (4), and adapter (5).

GO TO FRAME 2

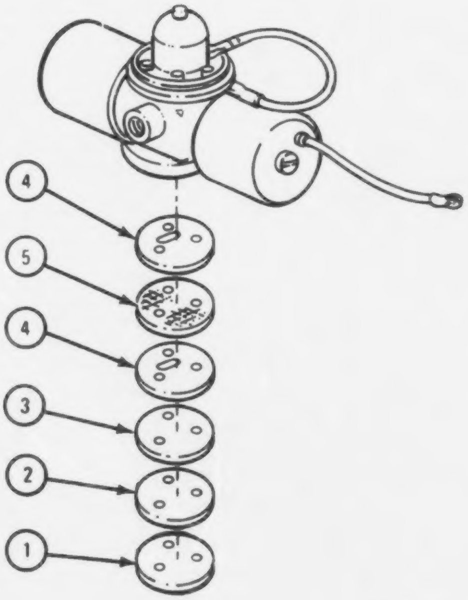


TA 083614

FRAME 2

1. Take off orifice plate cover (1), lower restriction gasket (2), restriction orifice plate (3), upper restriction gasket (4), screen (5), and another upper restriction gasket (4).

END OF TASK



TA 083615

c. Cleaning.

FRAME 1

WARNING

Eye shields must be worn when using compressed air. Eye injury can occur if eye shields are not used.

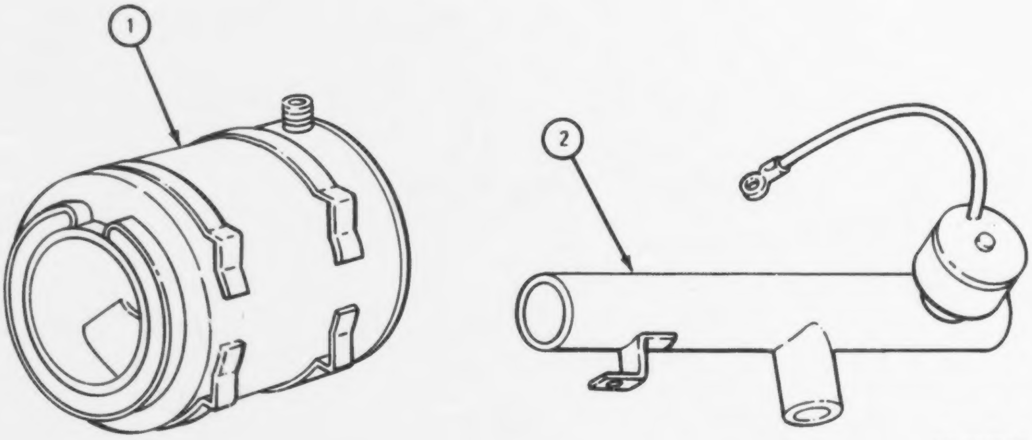
1. Using scraper, scrape all the carbon out of heat exchanger (1). Blow out heat exchanger with compressed air.

WARNING

Dry cleaning solvent is flammable. Do not use near an open flame. Keep a fire extinguisher nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and damage to equipment.

2. Soak heat exchanger (1) in solvent. Dry with clean rags.
3. Using solvent, clean all carbon and grease from inside and outside of air valve (2). Dry with clean rags.

GO TO FRAME 2



FRAME 2

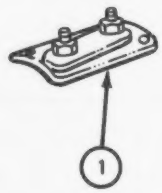
1. Clean contacts of overheat switch (1) by sliding a piece of bond paper between them.
2. Clean fuel filter. Refer to TM 9-2320-260-20.

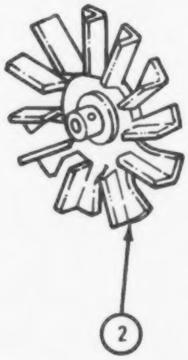
WARNING

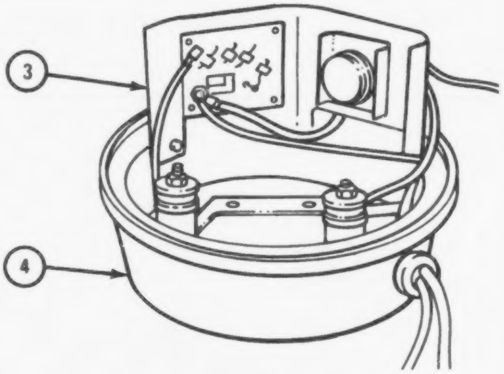
> Dry cleaning solvent is flammable. Do not use near an open flame. Keep a fire extinguisher nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and damage to equipment.

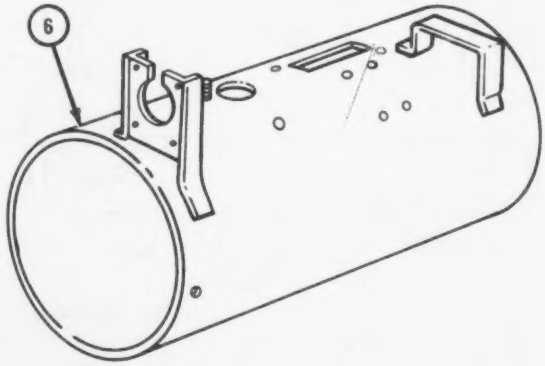
3. Using solvent, clean fan (2), housing (3), and motor mounting bracket (4). Dry parts with clean rags.
4. Using solvent, wipe off outside of motor (5). Do not let solvent get inside motor.
5. Using solvent, clean inside and outside of heater case (6). Dry with clean rags.

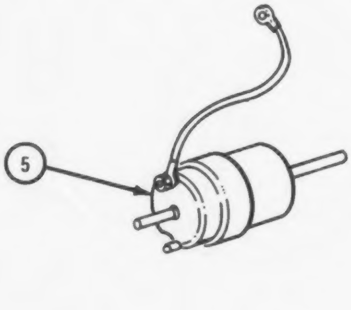
END OF TASK











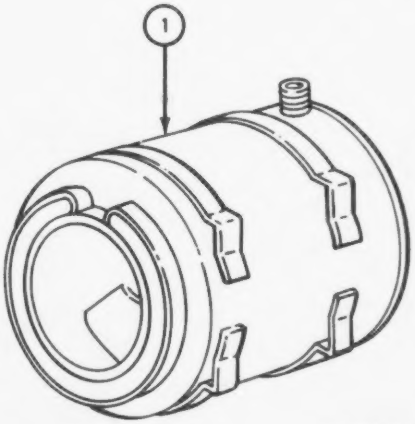
TA 083617

d. Inspection and Repair.

FRAME 1

1. Check that heat exchanger (1) has no damage or leaks.
2. Check that heat exchanger (1) is not burned through in any spots.
3. If heat exchanger (1) is damaged, get a new one.

GO TO FRAME 2

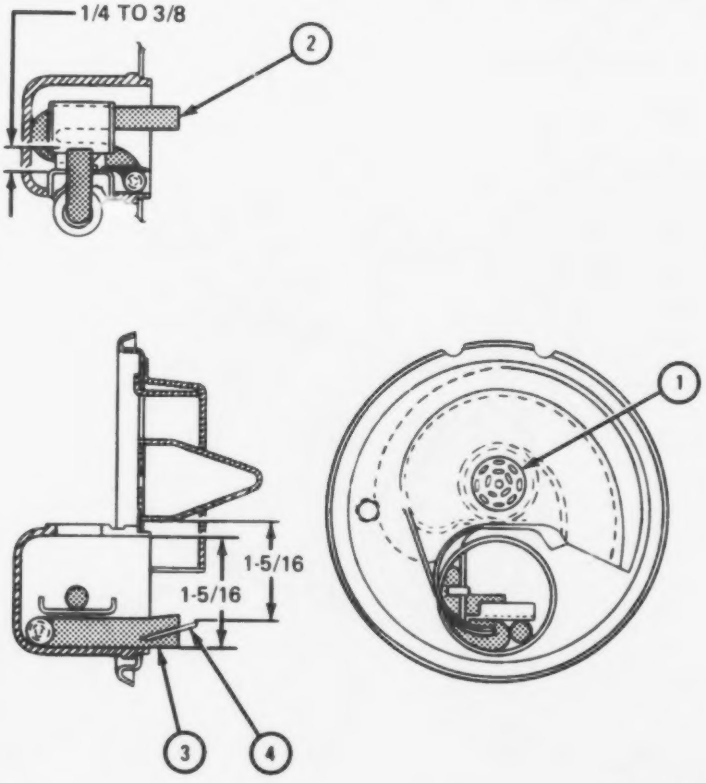


TA 083618

FRAME 2

1. Check that burner (1) has no large buildup of soot and carbon.
2. Check that wicks (2 and 3) are not damaged or worn.
3. Check that baffle scoop (4) is within dimensions given.

IF DAMAGE IS FOUND, GO TO FRAME 3.
IF THERE IS NO DAMAGE, GO TO FRAME 5

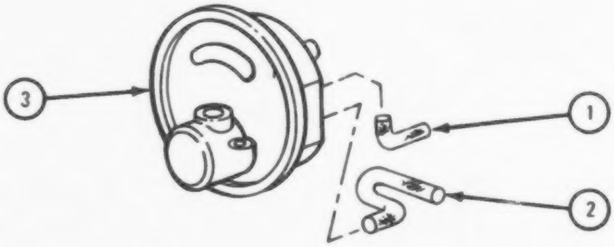


TA 083619

FRAME 3

1. Using needle nose pliers, take out wicks (1 and 2). Throw away wicks.
2. Using scraper, scrape all soot and carbon out of burner (3).

GO TO FRAME 4

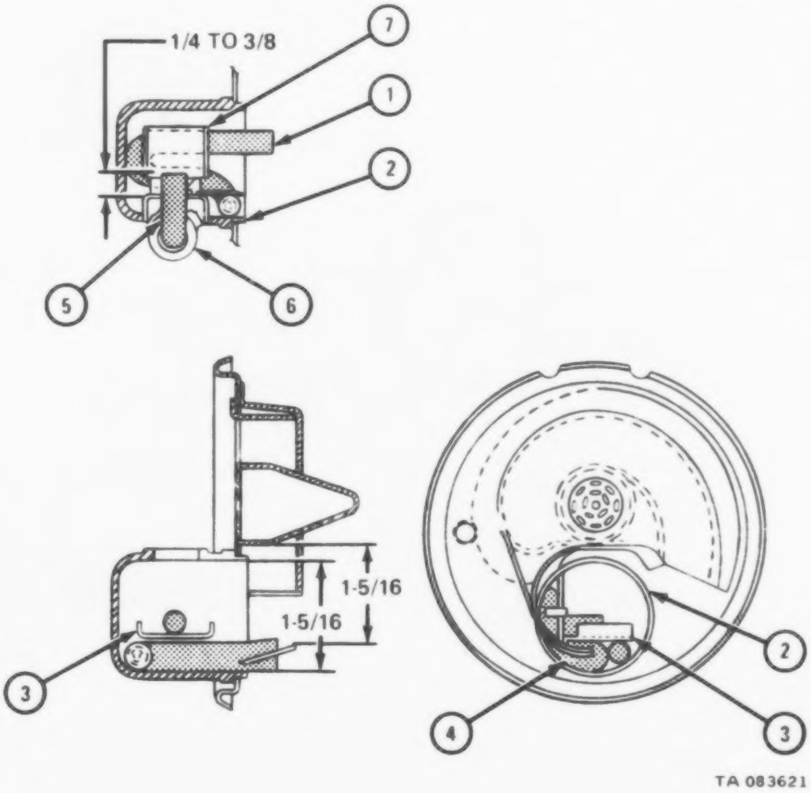


TA 083620

FRAME 4

1. Fold new wick (1) double and put folded end into ignitor casing (2) under shelf (3) and push to rear of pocket (4).
2. Put free end of wick (1) in place so that it measures as shown. Make sure that wick lays on the bottom of ignitor casing (2).
3. Put a new wick (5) in through fuel inlet (6) so that it lays on shelf (7) and measures as shown.

GO TO FRAME 5



FRAME 5

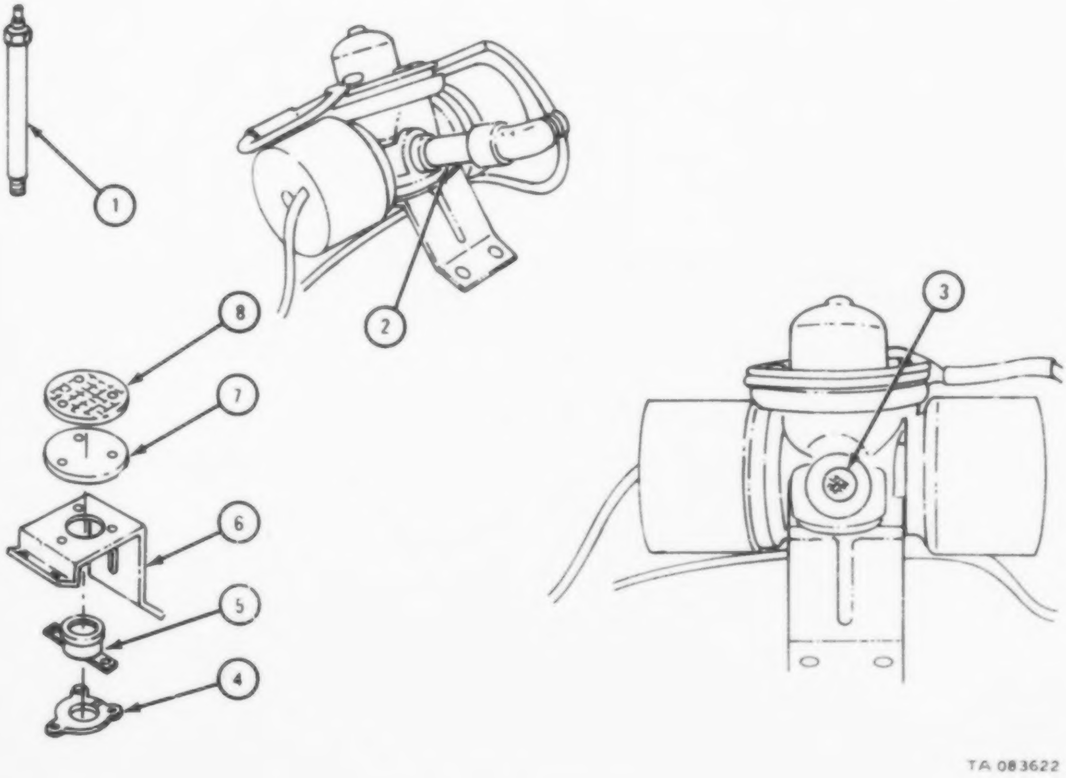
1. Throw away ignitor (1) and get a new one.
2. Using pipe wrench, unscrew and take out nipple (2).
3. Using screen remover, unscrew and take out screen (3) and put in a new one.
4. Using pipe wrench, screw in and tighten nipple (2).

WARNING

Dry cleaning solvent is flammable. Do not use near an open flame. Keep a fire extinguisher nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and damage to equipment.

5. Using solvent, clean clamp (4), thermostat (5), adapter (6), orifice plate (7), screen (8), and screen (3). Dry all parts with clean rags.

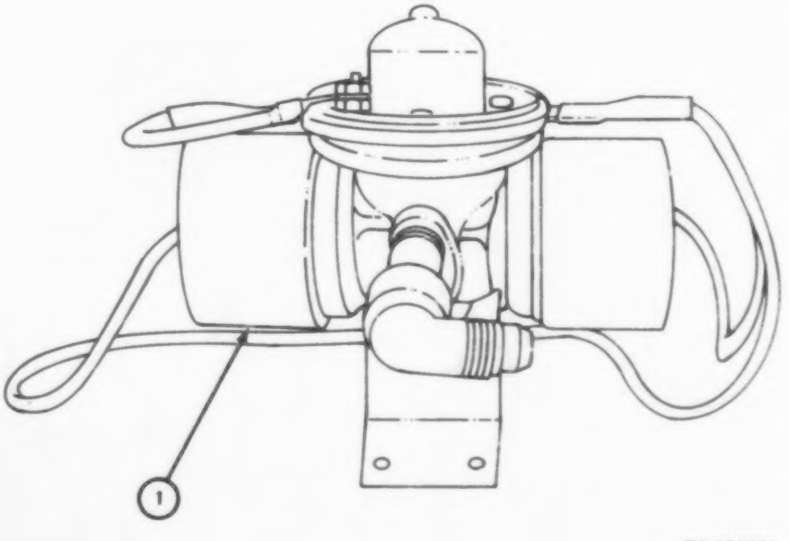
GO TO FRAME 6



FRAME 6

1. Using ohmmeter, check for continuity through heating element inside fuel control valve (1). If heating element shows an open circuit, get a new one.
2. Check that all electrical leads are in good condition and all connections are tight. Resolder any loose connections. If damage cannot be fixed, get new leads.

GO TO FRAME 7



FRAME 7

CAUTION

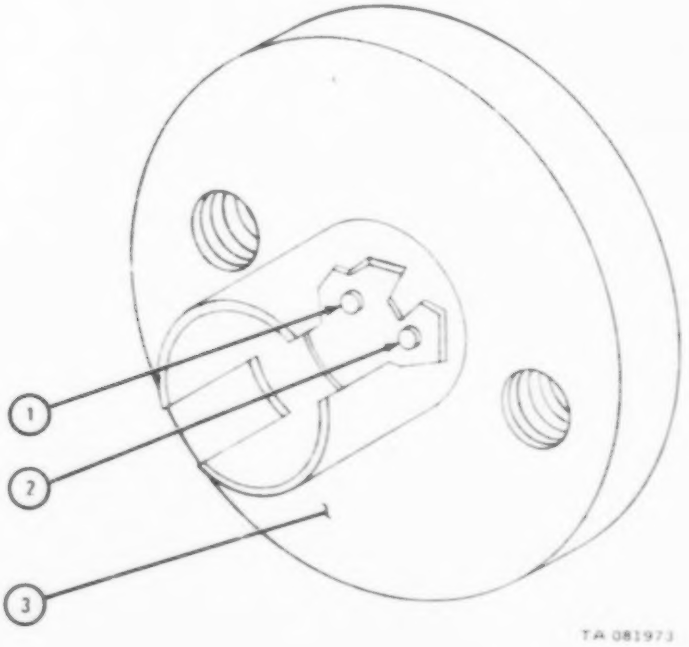
Do not put thermostat (3) in any liquid. It is not waterproof and will be damaged.

NOTE

The contacts of thermostat (3) open at room temperature. Since contacts do not close until temperature is between 40° and 60°F, you may have to refrigerate thermostat to see if it is working. This test does not have to be done if thermostat is known to be working correctly. If heater does not start correctly, do this test.

1. Hook up a test light to contacts (1 and 2) at a temperature of 65° to 75°F. If test light does light, get a new thermostat (3).
2. If test light does not light, put thermostat (3) in a refrigerator set at 40 to 60°F. If test light does not light, get a new thermostat.

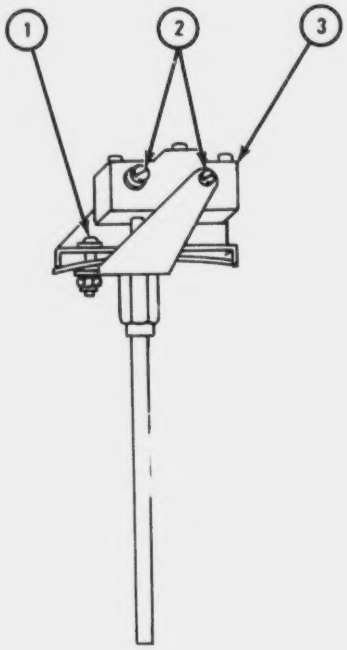
GO TO FRAME 8

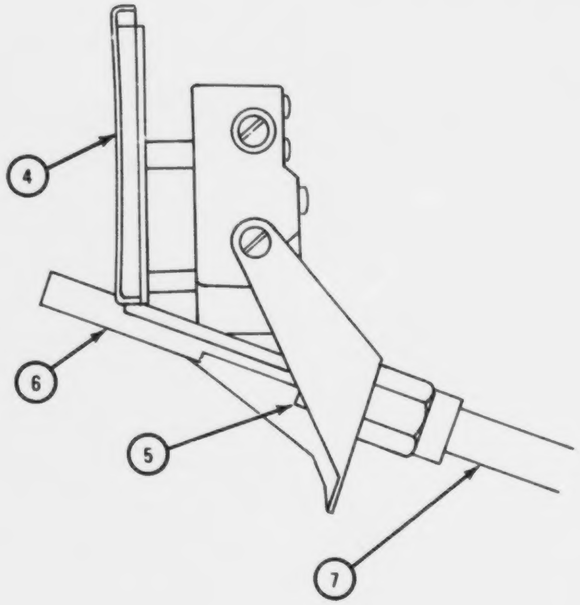


FRAME 8

1. Using flat-tip screwdriver, unscrew and take out screw (1).
2. Using flat-tip screwdriver, loosen two screws (2).
3. Turn back microswitch (3).
4. Take out bow spring (4).
5. Turn flame detector switch (5) over and let ceramic rod (6) slide out of tube (7).

GO TO FRAME 9



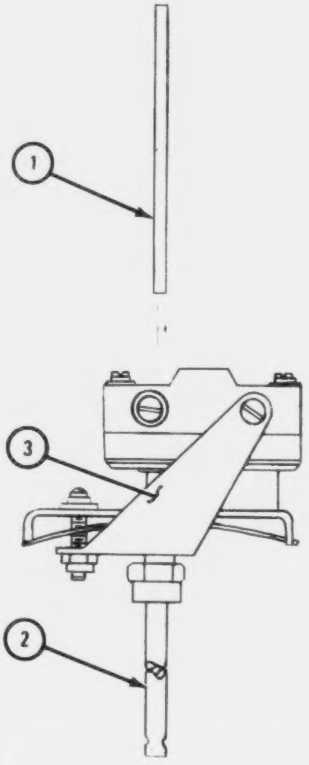


TA 083672

FRAME 9

1. Check that ceramic rod (1) is not chipped or broken. If ceramic rod is damaged, get a new one.
2. Using wire brush, clean tube (2) and check that it is not damaged in any way. If tube is damaged, get a new flame detector switch (3).

GO TO FRAME 10



TA 081975

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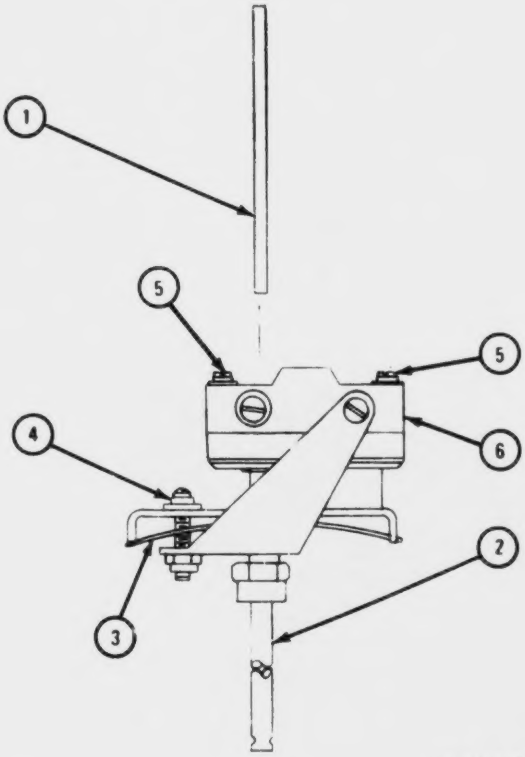
FRAME 10

1. Slide ceramic rod (1) into tube (2).
2. Put in bow spring (3).
3. Using flat-tip screwdriver, screw in adjusting screw (4).
4. Using flat-tip screwdriver, screw in two screws (5) until microswitch (6) is held in place but not locked.

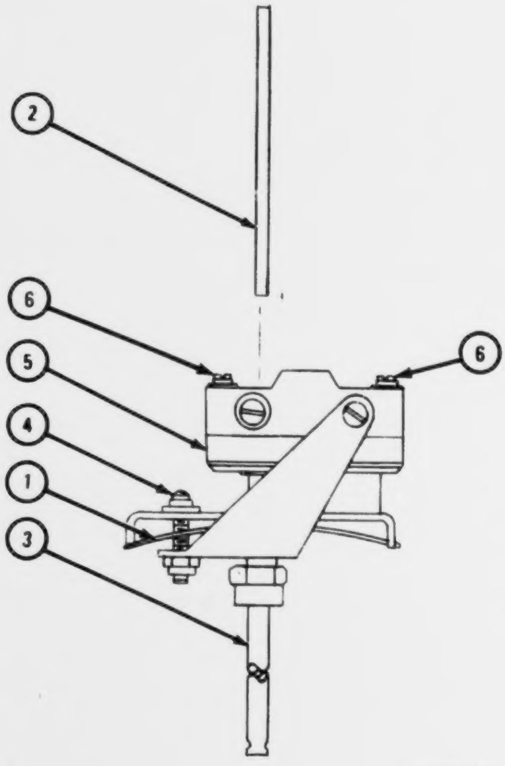
GO TO FRAME 11



FRAME 11

1. Press up on center of bow spring (1) so ceramic rod (2) can center itself in tube (3).
2. Using flat-tip screwdriver, back off adjusting screw (4) until microswitch (5) clicks (about one full turn). Then turn in adjusting screw 3/4 turn.
3. Using flat-tip screwdriver, screw in and tighten two screws (6).

GO TO FRAME 12

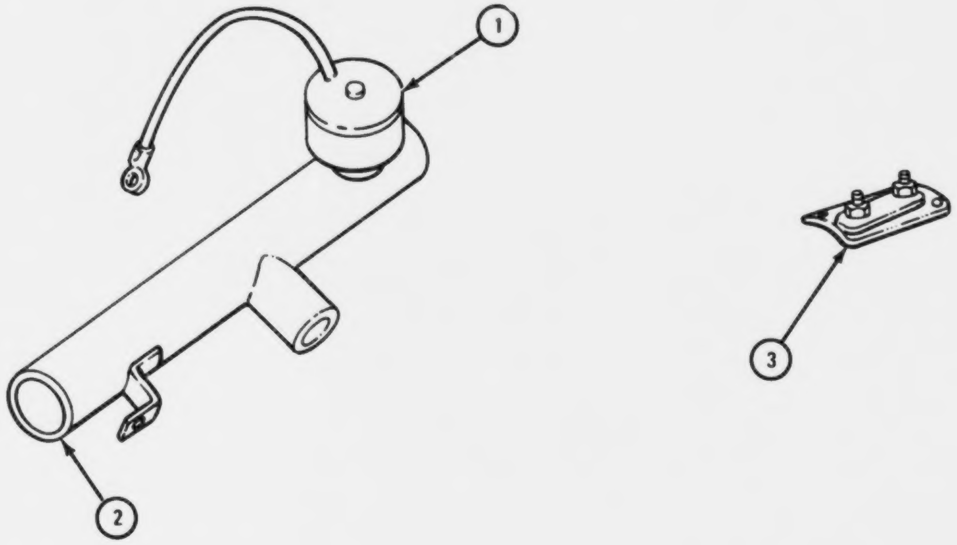


TA 081977

FRAME 12

1. Check that solenoid (1) is working correctly and that valve (2) is working freely. If valve does not work freely, get a new solenoid.
2. Check that overheat switch (3) is not damaged in any way. If overheat switch is damaged, get a new one.

GO TO FRAME 13

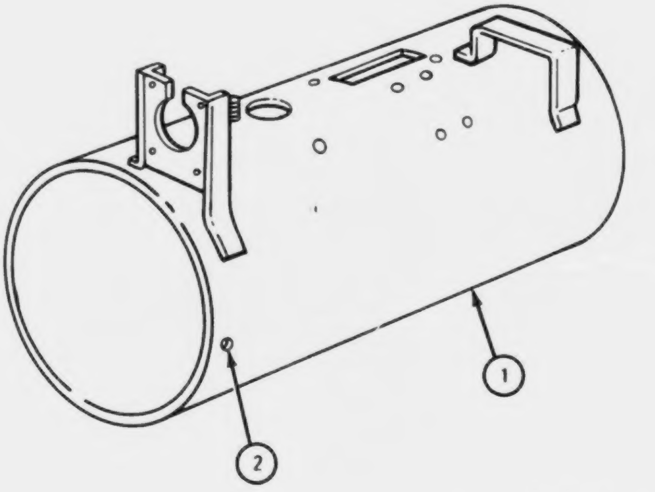


TA 083624

FRAME 13

1. Check that all wiring insulation is in good condition and that all connectors are tight. If harness is damaged, get a new one.
2. Check that heater case (1) is not damaged in any way. Check that threads on weld nuts (2) are in good condition. If weld nuts are damaged, get new ones.

END OF TASK



TA 083625

e. Assembly.

(1) Assembly of fuel control valve.

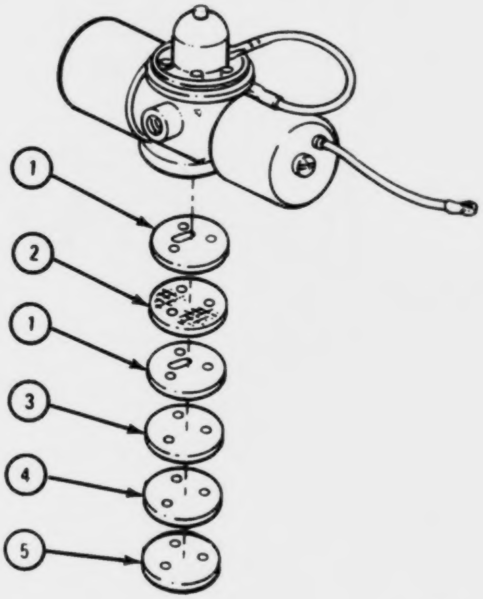
CAUTION

Use clean tools and work on clean surface during this task. Do not let dust or dirt get into fuel control valve. Needle valve can become clogged or solenoid surfaces can leak.

FRAME 1

1. Put upper restriction gasket (1), screen (2), another upper restriction gasket (1), restriction orifice plate (3), lower restriction gasket (4), and orifice plate cover (5) in place.

GO TO FRAME 2

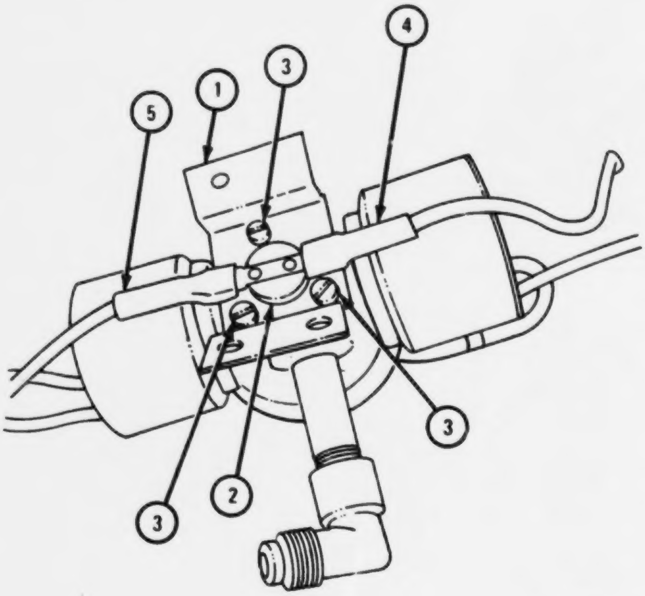


TA 083626

FRAME 2

1. Put adapter (1) and thermostat and clamp (2) in place.
2. Using flat-tip screwdriver, screw in and tighten three screws (3).
3. Plug in wires (4 and 5) as tagged. Take off tags.

END OF TASK



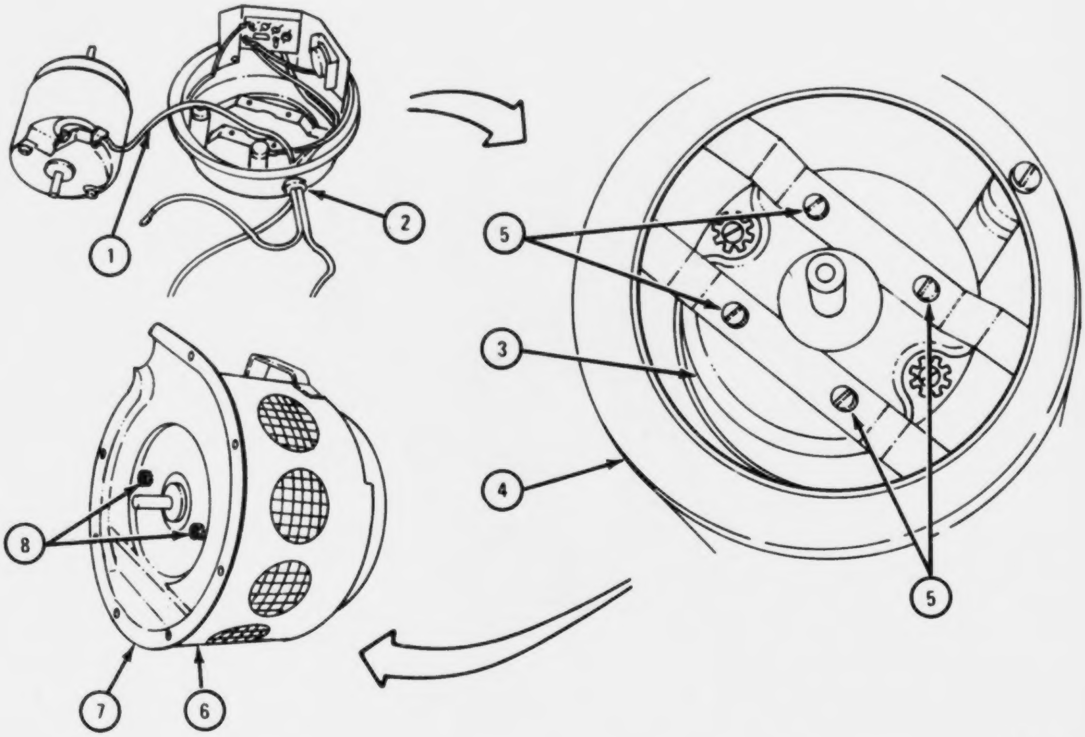
TA 083627

(2) Assembly of blower.

FRAME 1

1. Put wire (1) through grommet (2).
2. Put motor (3) on housing (4) and using flat-tip screwdriver, screw in and tighten four screws (5).
3. Put housing and motor assembly (6) on blower half (7).
4. Using 11/32-inch wrench, screw on and tighten two nuts (8).

GO TO FRAME 2

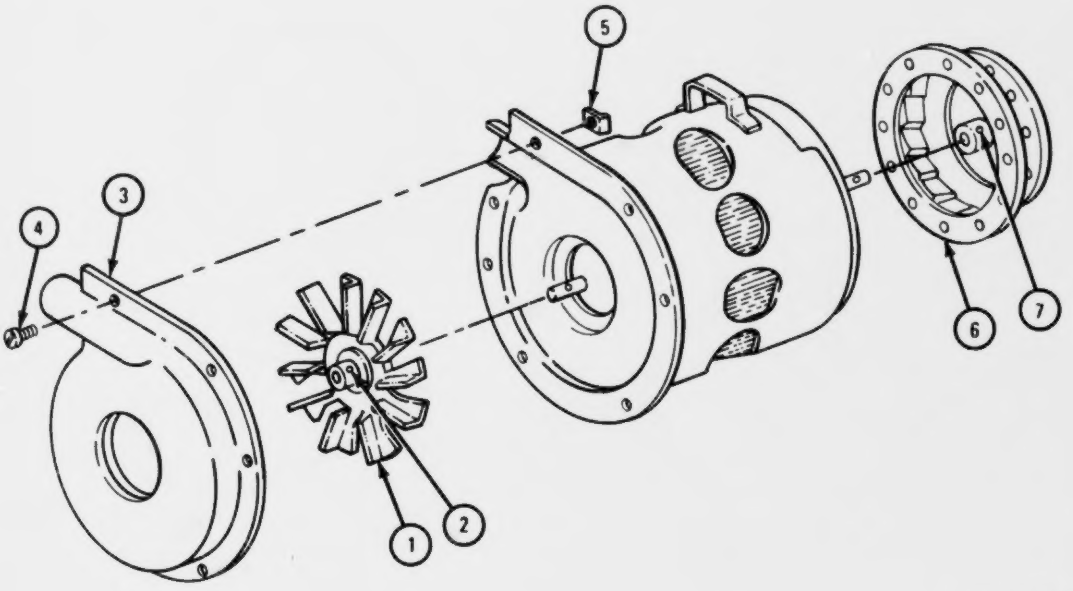


TA 083628

FRAME 2

1. Put combustion air blower wheel (1) in place and using 3/32-inch allen wrench, screw in and tighten setscrew (2).
2. Put combustion blower housing (3) in place and using flat-tip screwdriver, screw in and tighten seven screws (4) and speed nuts (5).
3. Put ventilating blower wheel (6) in place and using 3/32-inch allen wrench, screw in and tighten setscrew (7).

END OF TASK



TA 083629

(3) Replacement of housing.

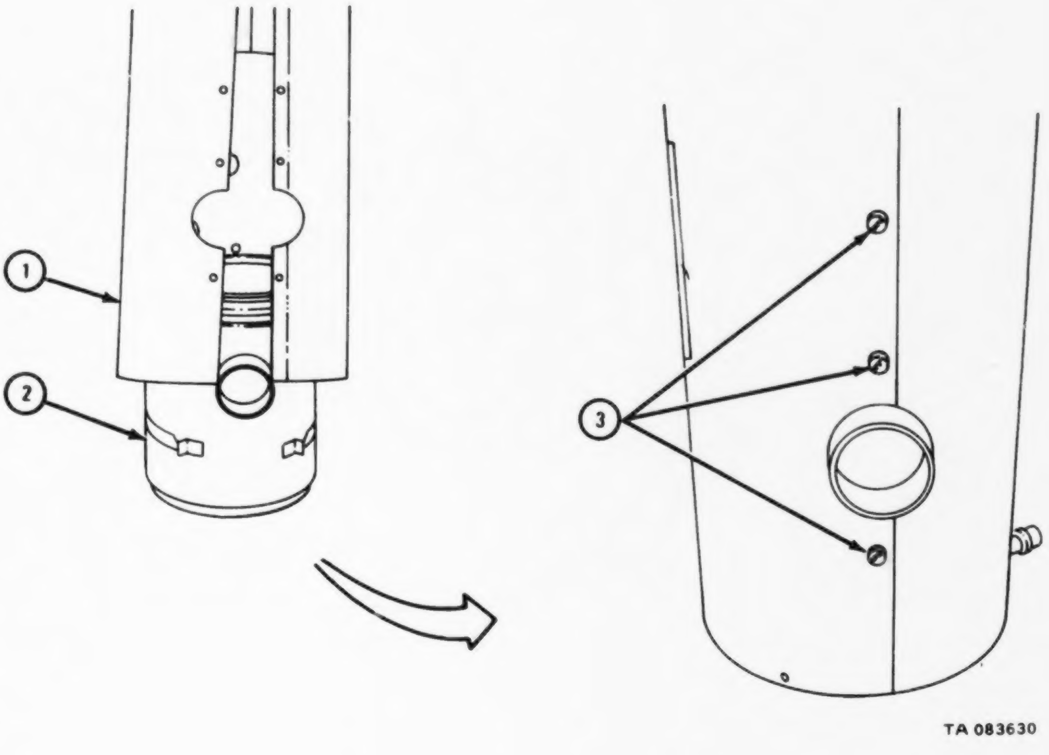
FRAME 1

CAUTION

When spreading apart housing (1), be careful not to bend or distort housing or it will not be usable.

1. Spread apart housing (1) enough to put in heat exchanger (2). Put in heat exchanger.
2. Using flat tip screwdriver, screw in and tighten three screws (3).

END OF TASK

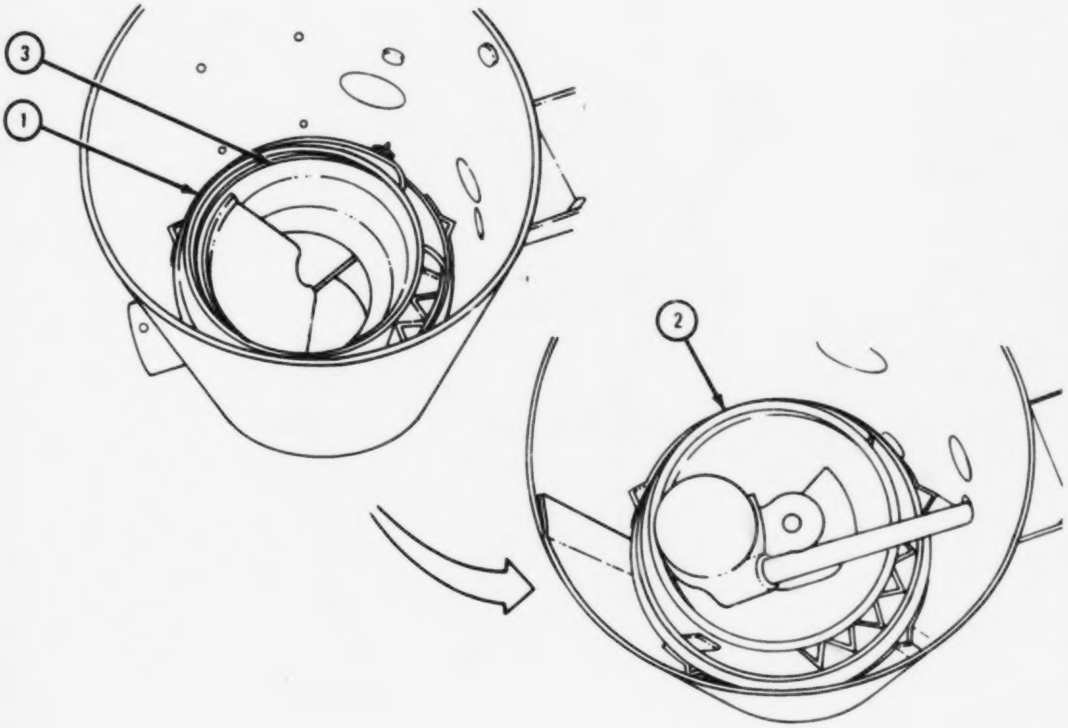


(4) Replacement of burner.

FRAME 1

1. Put preformed packing (1) in groove of burner (2). Put gasket (3) in place.
2. Put burner (2) with preformed packing (1) in place.

END OF TASK

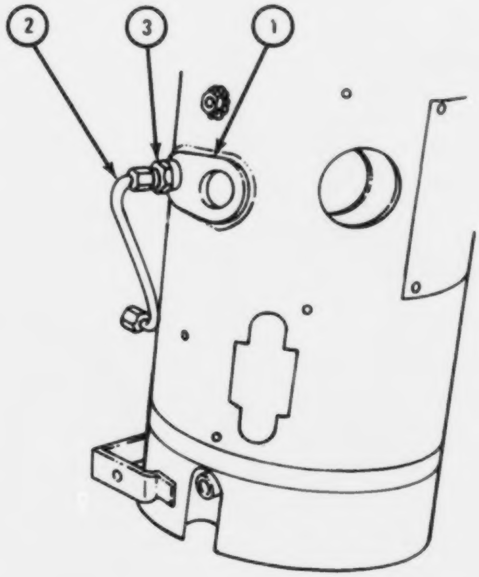


(5) Replacement of fuel line and hatch cover.

FRAME 1

1. Put hatch cover (1) in place.
2. Put fuel line (2) in place and using 9/16-inch wrench, screw on and tighten fitting (3).

END OF TASK



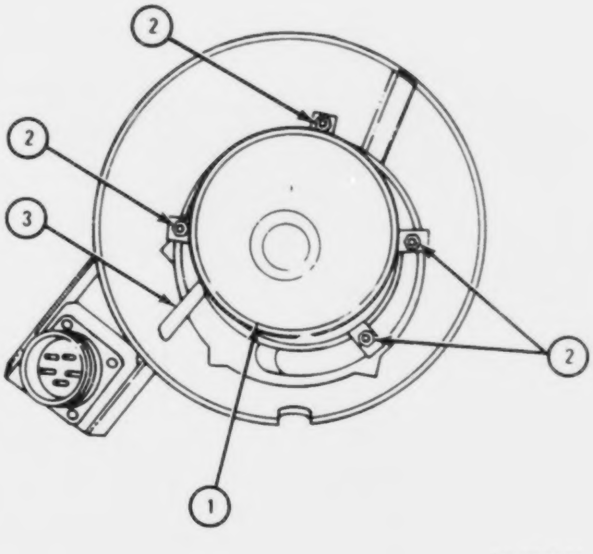
TA 083632

(6) Replacement of combustion air housing.

FRAME 1

1. Put combustion air housing (1) in place and using 11/32-inch socket wrench, screw in and tighten four screws and clamps (2).
2. Using pipe wrench, screw in and tighten nipple (3).

END OF TASK



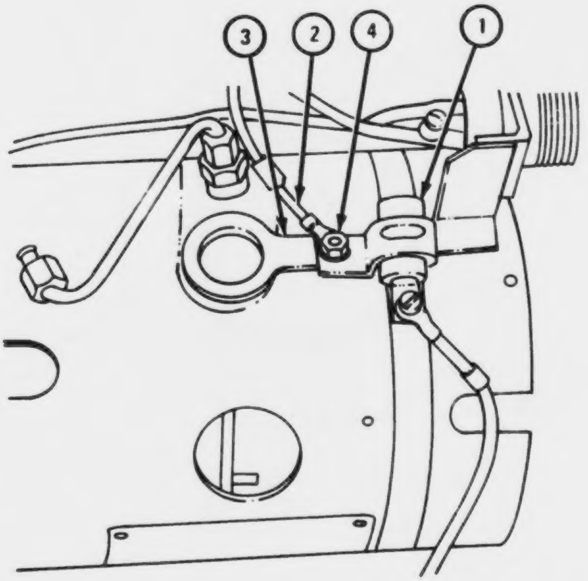
TA 083633

(7) Replacement of ignitor.

FRAME 1

1. Put capacitor (1), ground terminal (2) and terminal (3) in place as tagged. Take off tags.
2. Using 11/32-inch wrench, screw in and tighten nut (4).

GO TO FRAME 2

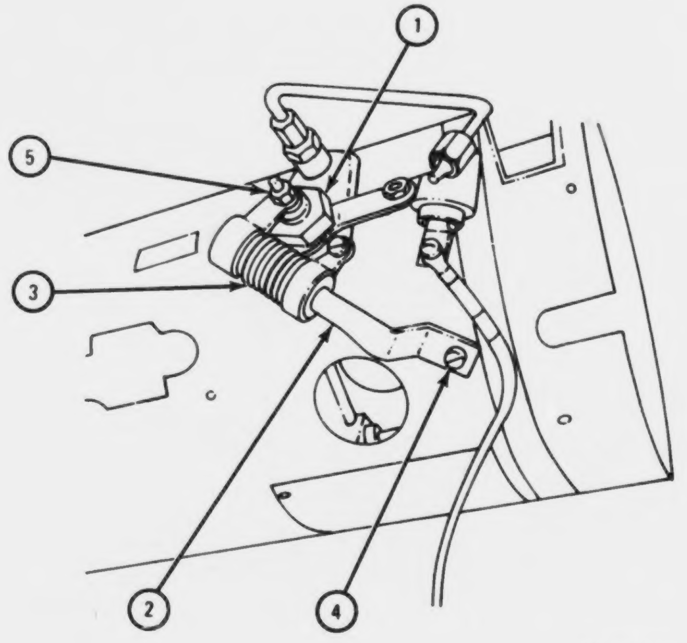


TA 083634

FRAME 2

1. Using 13/16-inch wrench, screw in and tighten ignitor (1).
2. Put bracket (2) and resistor (3) in place.
3. Using flat-tip screwdriver, screw in and tighten three screws (4).
4. Using 11/32-inch wrench, screw on and tighten nut (5).

END OF TASK



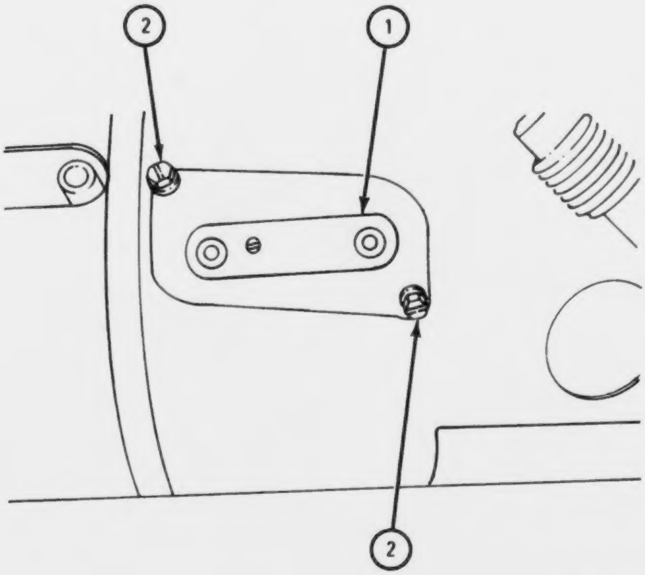
TA 083635

(8) Replacement of overheat switch.

FRAME 1

1. Put overheat switch (1) in place.
2. Using flat-tip screwdriver, screw in and tighten two screws (2).

END OF TASK



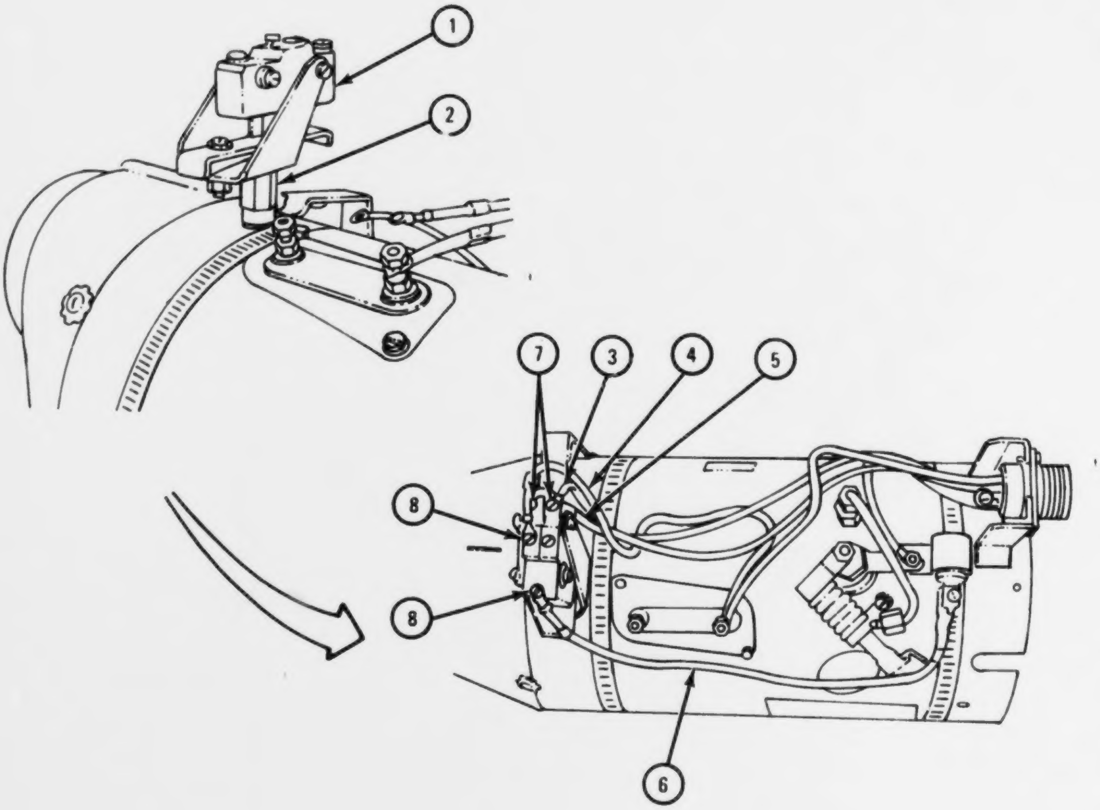
TA 083636

(9) Replacement of flame detector switch.

FRAME 1

1. Put flame detector switch (1) in place and using 1/2-inch wrench, screw on and tighten fitting (2).
2. Put wire leads (3, 4, 5, and 6) in place as tagged. Take off tags.
3. Using flat-tip screwdriver, screw in and tighten two screws (7) and two screws (8).

END OF TASK



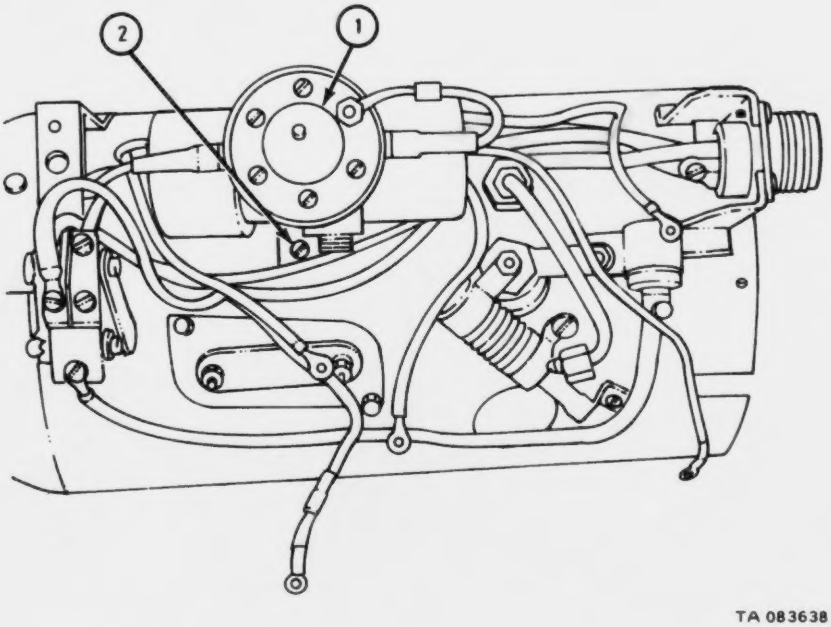
TA 083637

(10) Replacement of fuel control valve.

FRAME 1

1. Put fuel control valve (1) in place.
2. Using flat-tip screwdriver, screw in and tighten three screws (2).

GO TO FRAME 2

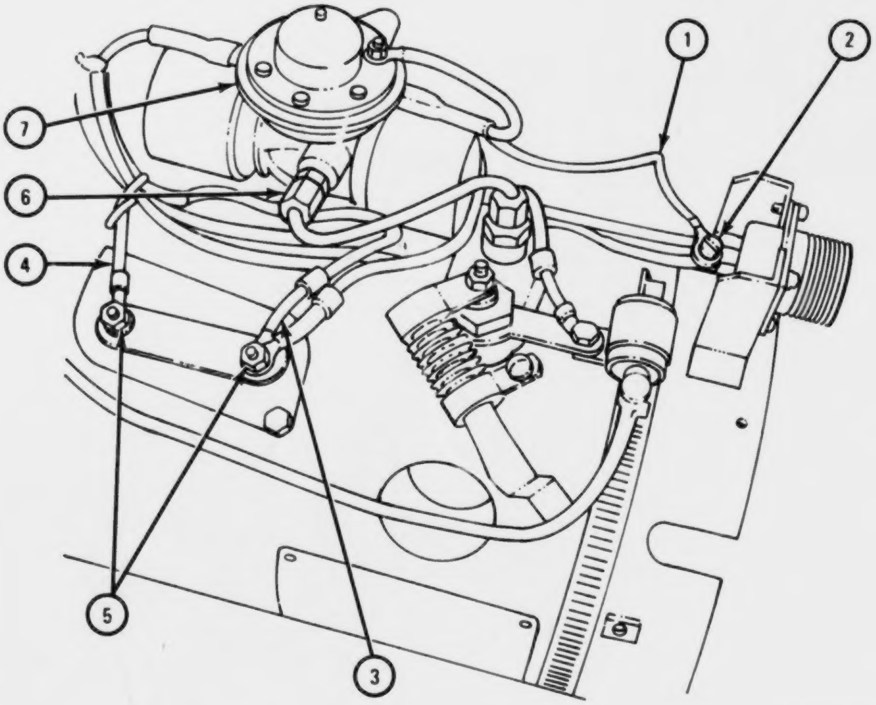


TA 083638

FRAME 2

1. Put wire lead (1) in place as tagged and, using flat-tip screwdriver, screw in and tighten screw (2). Take off tag.
2. Put wire leads (3 and 4) in place as tagged and using 5/16-inch wrench, screw on and tighten two nuts and washers (5). Take off tags.
3. Using 7/16-inch wrench, screw in and tighten fitting (6) into fuel control valve (7).

END OF TASK

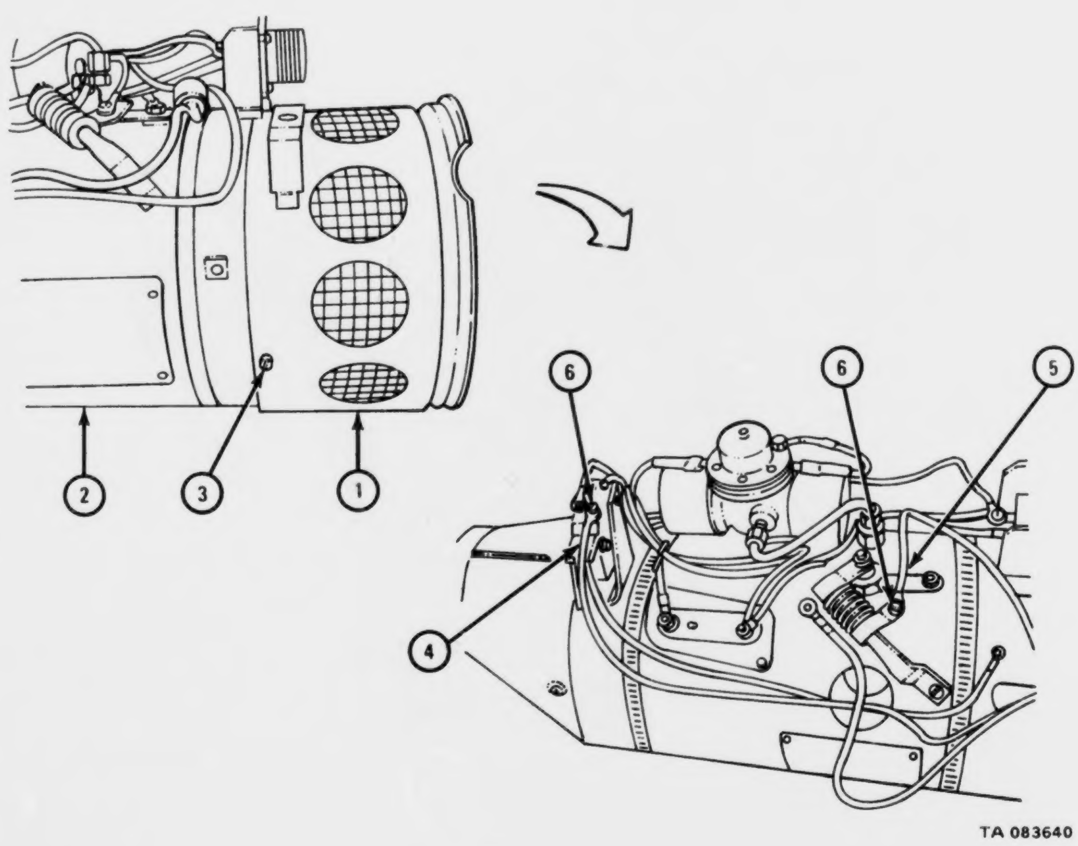


(11) Replacement of blower.

FRAME 1

1. Put blower (1) on housing (2) and, using flat-tip screwdriver, screw in and tighten four screws (3).
2. Put wire leads (4 and 5) in place as tagged and using flat tip screwdriver and 11/32-inch wrench, screw in and tighten two screws (6). Take off tags.

END OF TASK

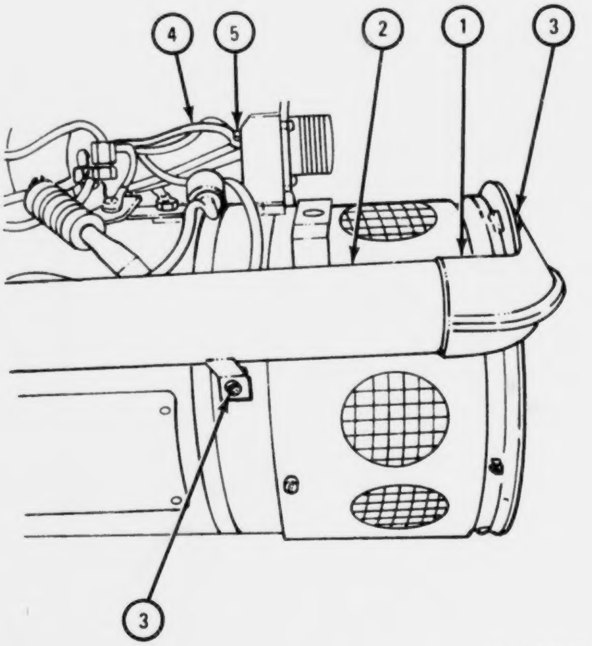


(12) Replacement of air valve.

FRAME 1

1. Put elbow (1) and air valve (2) in place.
2. Using flat-tip screwdriver, screw in and tighten two screws (3).
3. Put lead (4) in place. Using flat-tip screwdriver, screw in and tighten screw (5).

END OF TASK



TA 083641

(13) Replacement of guard.

FRAME 1

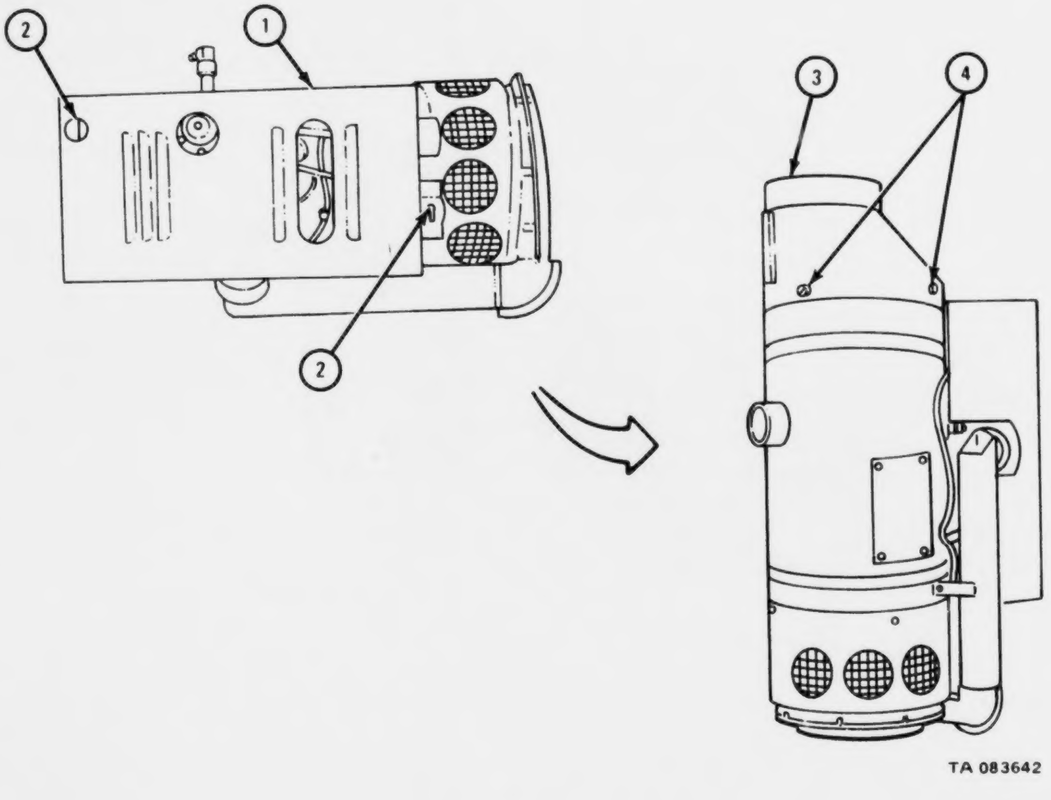
1. Put guard (1) in place.
2. Tighten two spring-loaded fasteners (2).
3. Put air duct (3) in place and, using phillips screwdriver, screw in and tighten four screws and washers (4).

NOTE

Follow-on Maintenance Action Required:

Replace fuel burning personnel heater.
Refer to para 19-7.

END OF TASK



19-9. FUEL BURNING PERSONNEL HEATER TEST.

NOTE

To get a heater test stand, go to your maintenance supervisor.

TOOLS: Stopwatch
Voltmeter
Heater test stand

SUPPLIES: None

PERSONNEL: One

EQUIPMENT CONDITION: Heater on workbench.

a. Preliminary Procedure. Put heater in test stand. Refer to special test ST9-194.

b. Testing.

WARNING

Fuel is flammable. To prevent fire or explosion, smoking, open flame, sparks, and glowing or hot objects are not allowed within 50 feet of work area during this task.

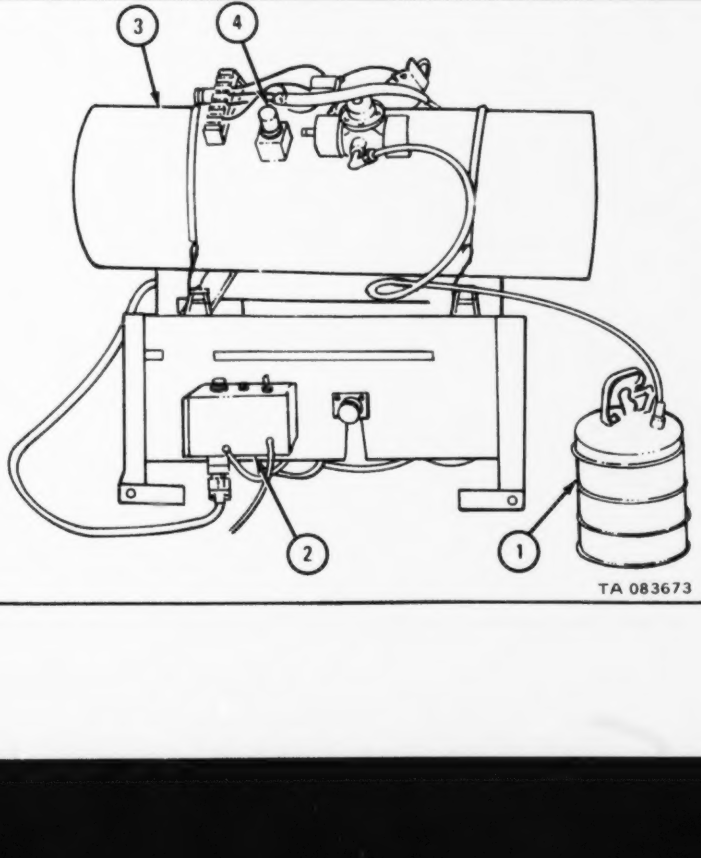
NOTE

Ignition will normally be heard after step 2, but if test is done in a noisy area, unhook exhaust extension and watch for a puff of black smoke. This smoke means heater has ignited.

FRAME 1

1. Check that there is fuel in supply tank (1). If not, fill supply tank.
2. Turn heater control switch (2) to HI position.
3. Using stopwatch, check to see that heater (3) ignites within 20 seconds. If it does, go to frame 2.
4. If heater (3) does not ignite, put hand on fuel shutoff solenoid (4) and turn on heater control switch (2). If solenoid vibrates, it is good. If it does not, get a new fuel shutoff solenoid and put it in. Refer to para 19-8.
5. If heater (3) still did not ignite, take out and check ignite and overheat switch. Refer to para 19-8.

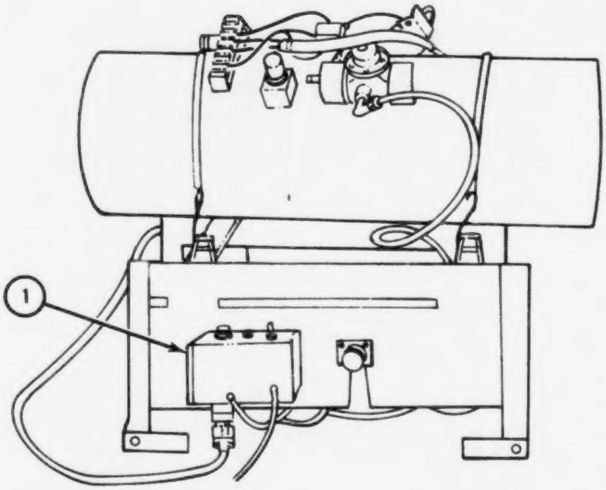
GO TO FRAME 2



FRAME 2

1. Turn heater control switch (1) to HI position.
2. If blower motor is in high speed when heater control switch (1) is turned on, shut off heater control switch.
3. Take out flame detector switch and inspect it. Refer to para 19-8.
4. Check microswitch. Refer to para 19-8.

GO TO FRAME 3

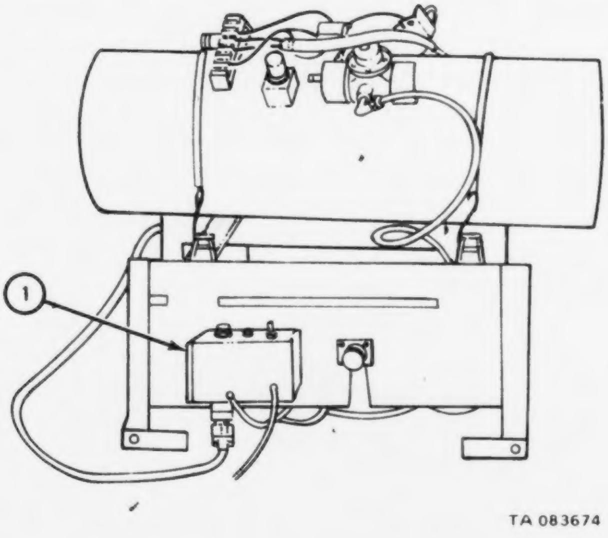


TA 083674

FRAME 3

1. Turn heater control switch (1) to HI position.
2. When heater ignites, using stopwatch, listen to see that blower motor goes into high speed within 2 to 5 minutes.
3. If blower motor did not go into high speed, adjust flame detector switch. Refer to para 19-8.

GO TO FRAME 4

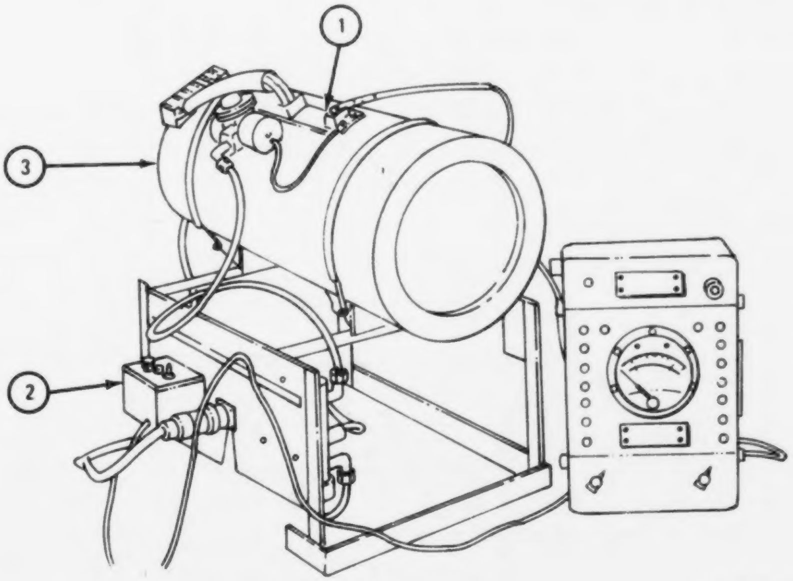


TA 083674

FRAME 4

1. Set voltmeter for 50-volt range.
2. Put voltmeter positive lead on terminal 30 on overheat switch (1).
3. Put voltmeter negative lead on a good ground.
4. Turn heater control switch (2) to LO position.
5. Cover air intake (3), and, using stopwatch, check to see that voltmeter reading drops to zero within 40 to 80 seconds.
6. If voltmeter does not drop to zero within 40 to 80 seconds, replace overheat switch. Refer to para 19-8.

GO TO FRAME 5



TA 083675

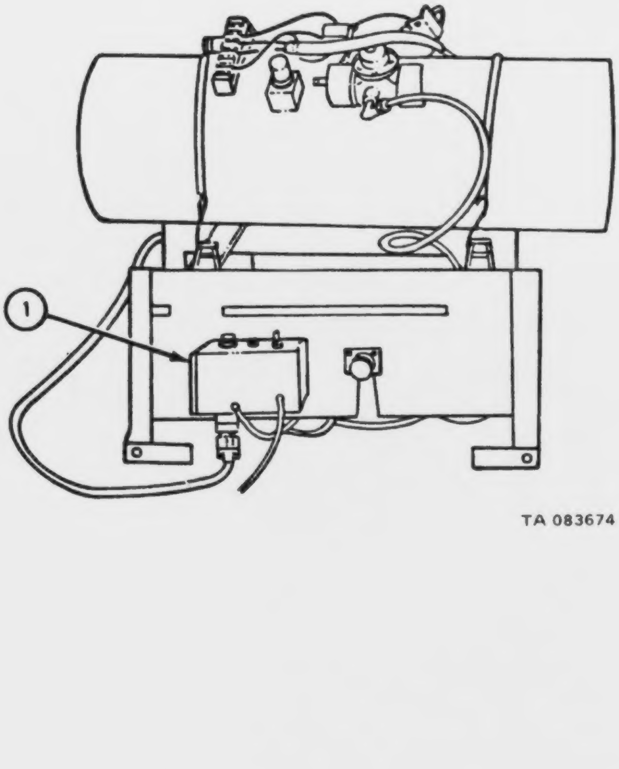
FRAME 5

NOTE

Before doing this test, let heater run for one minute to let temperature return to normal. Heater will still be too hot from overheat switch test.

1. Turn heater control switch (1) to HI position and let heater run for 3 minutes.
2. Turn heater control switch (1) to OFF position and using stopwatch, check to see that blower shuts off between 1 and 3 minutes.
3. If blower does not shut off between 1 and 3 minutes, adjust flame detector switch. Refer to para 19-8.

END OF TASK



TA 083674

19-10. CAB HARD TOP KIT INSTALLATION.

TOOLS: 1/2-inch drill NSN 5130-00-889-9004
20-foot tape measure
Scribe
7/16-inch bit
Flat-tip screwdriver

SUPPLIES: Cab Hard Top Kit, NSN 2540-00-570-1443

PERSONNEL: One

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedure. Remove cab top paulin. Refer to TM 9-2320-260-10.

b. Installation.

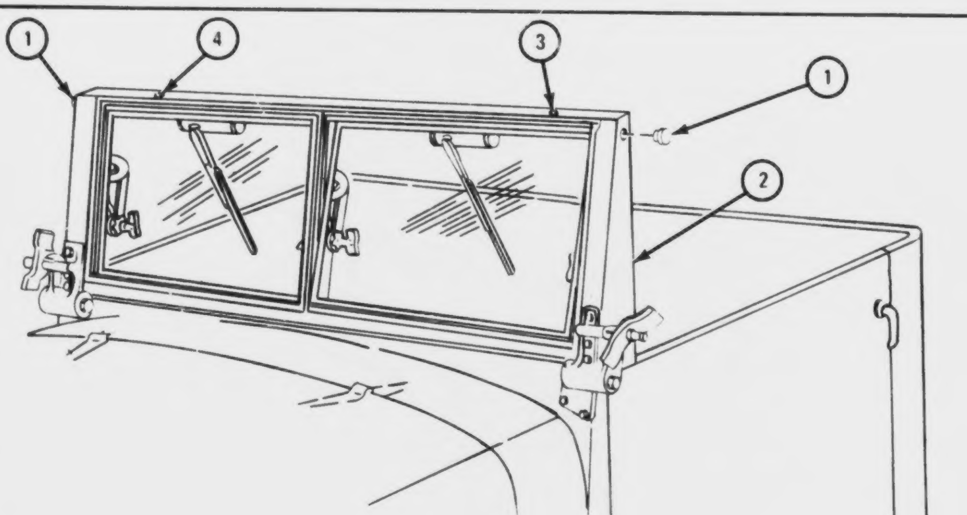
FRAME 1

1. Using screwdriver, take out two buttons (1).
2. Using tap measure and scribe, find and mark center top of windshield frame (2). Mark points (3 and 4) 21 7/8-inches from center of windshield.
3. Using drill and bit, drill holes at points (3 and 4).

NOTE

No other modifications to truck are necessary. Installation can be done by following replacement procedure for cab hard top. Refer to Part 3, para 16-6.

END OF TASK



TA 081523

19-11. HOOD COVER ASSEMBLY INSTALLATION.

TOOLS: Marking pen
Hammer
Center punch
Drill
9/64-inch drill bit
Cross-tip screwdriver (Phillips type)

SUPPLIES: None

PERSONNEL: Two

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedure. Remove air cleaner assembly. Refer to TM 9-2320-260-20.

b. Installation.

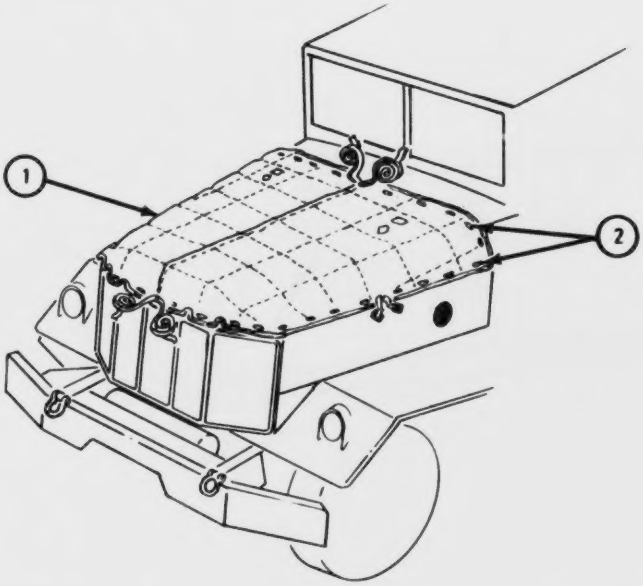
FRAME 1

Soldier A 1. Hold hood cover (1) in place on truck as shown. Do not move hood cover once it is in place.

Soldier B 2. Using marking pen, mark location of all grommets (2) on truck.

Soldier A 3. Take off hood cover (1).

GO TO FRAME 2

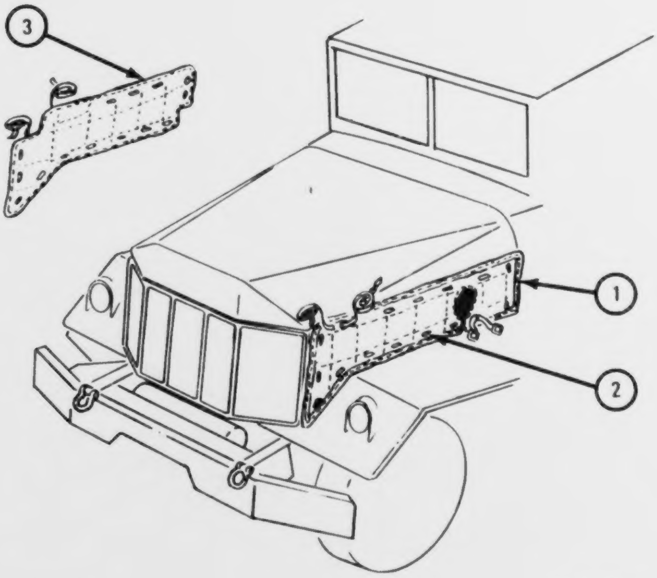


TA 081690

FRAME 2

Soldier A	1.	Hold left side panel cover (1) in place on truck as shown.
Soldier B	2.	Using marking pen, mark location of all grommets (2) on truck.
Soldier A	3.	Take off left side panel cover (1).
Soldiers A and B	4.	Do steps 1 through 3 again for right side panel (3).

GO TO FRAME 3



TA 081691

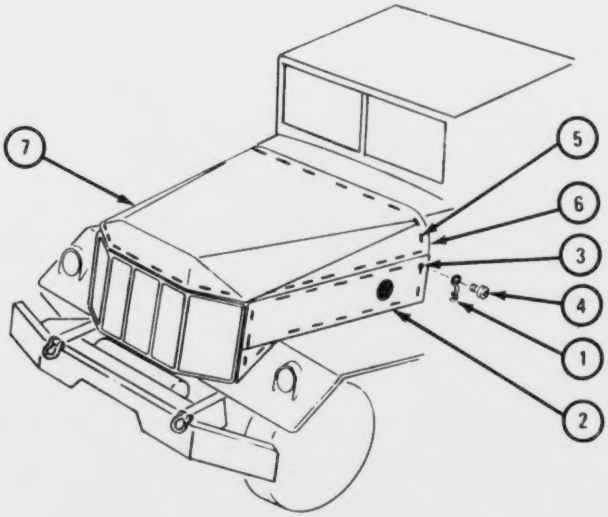
FRAME 3

CAUTION

Be sure there is clearance under hood and behind side panels so drill cannot damage parts in engine compartment.

1. Hold loop (1) against left side panel (2) with center of loop over pen mark (3).
2. Using marking pen, mark left side panel (2) at location of two screw holes in loop (1).
3. Using hammer and center punch, punch two screw hole locations marked in step 2.
4. Using drill with 9/64-inch drill bit, drill two screw holes at locations punched in step 3.
5. Hold loop (1) against left side panel (2) and aline screw holes.
6. Using screwdriver, screw in and tighten two screws (4).
7. Do steps 1 through 6 again for all pen marks (3) on left side panel (2) and all pen marks (5) on hood (6) and right side panel (7).

GO TO FRAME 4

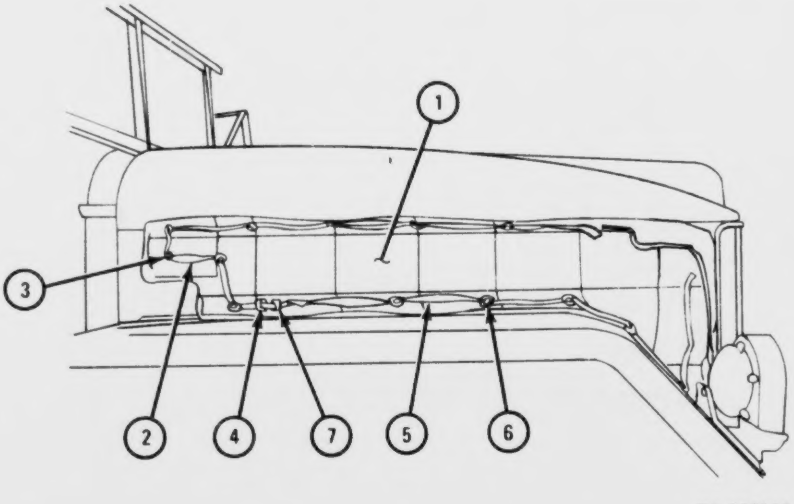


TA 081692

FRAME 4

1. Put side panel cover (1) in place on truck as shown.
2. Lace strap (2) through loops (3) and buckle (4) as shown.
3. Lace strap (5) through loops (6) and buckle (7) as shown.
4. Do steps 1 through 3 again for side panel cover on other side of truck.

GO TO FRAME 5



TA 050144

FRAME 5

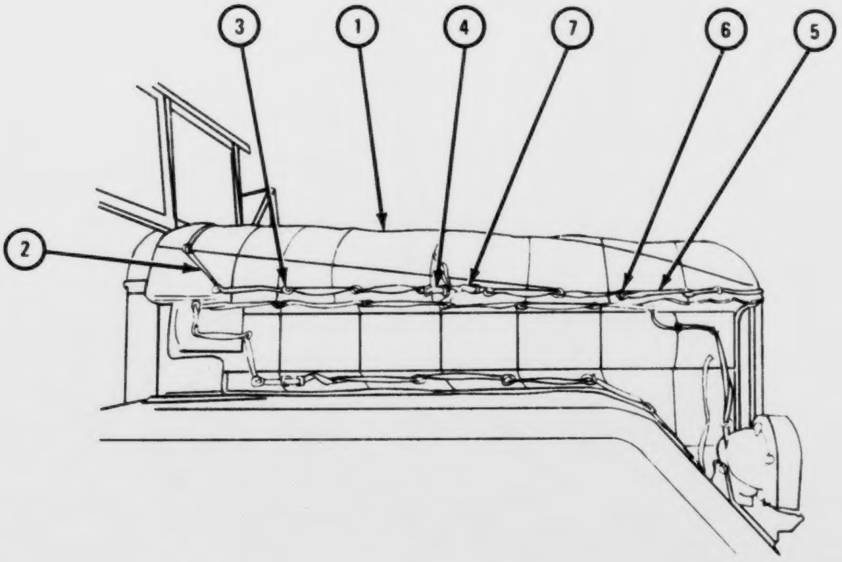
1. Put hood cover (1) in place on truck as shown.
2. Lace strap (2) through loops (3) and buckle (4).
3. Lace strap (5) through loops (6) and buckle (7).
4. Do steps 2 and 3 again on other side of hood cover (1).

NOTE

Follow-on Maintenance Action Required:

Replace air cleaner assembly. Refer to TM 9-2320-260-20.

END OF TASK



TA 050145

19-12. HOOD COVER ASSEMBLY REPAIR.

Refer to FM 43-3 for repair of hood cover assembly.

19-13. RADIATOR COVER ASSEMBLY INSTALLATION.

TOOLS:
- Marking pen
- Hammer
- Center punch
- Drill
- 9/64-inch drill bit
- Cross-tip screwdriver (Phillips type)

SUPPLIES:
- Radiator cover loops (4)
- Radiator cover loop screws (8)

PERSONNEL: Two

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

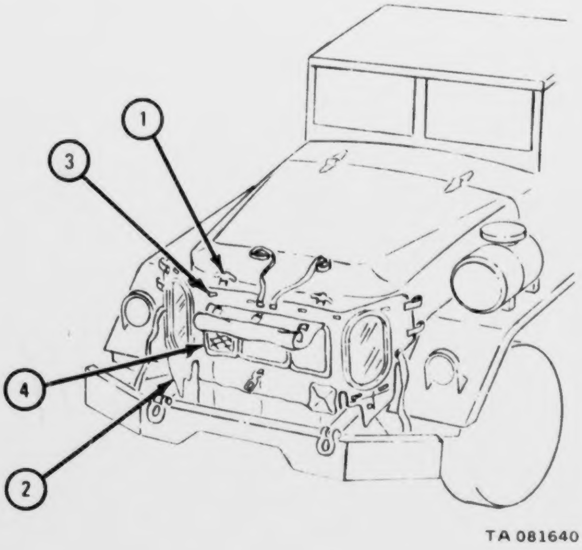
FRAME 1

Soldier A 1. Unlatch two hood latches (1). Put radiator cover (2) in place on truck as shown and hold it.

Soldier B 2. Using marking pen, mark location of 13 grommets (3) on radiator guard (4).

Soldier A 3. Take off radiator cover (2).

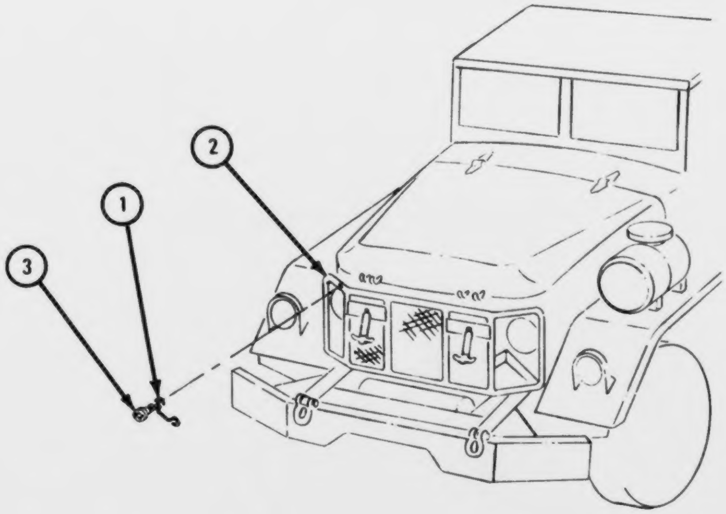
GO TO FRAME 2



FRAME 2

1. Hold radiator cover loop (1) against brush guard (2) with center of loop over pen mark and ends of loop on brush guard.
2. Using marking pen, mark brush guard (2) at locations of two screw holes of loop (1). Take off loop.
3. Using hammer and center punch, punch two screw hole locations marked in step 2.
4. Using drill and drill bit, drill two screw holes at locations punched in step 3.
5. Hold loop (1) against brush guard (2) and aline screw holes.
6. Using screwdriver, screw in and tighten two screws (3).
7. Do steps 1 through 6 again for 12 more loops (1).

GO TO FRAME 3

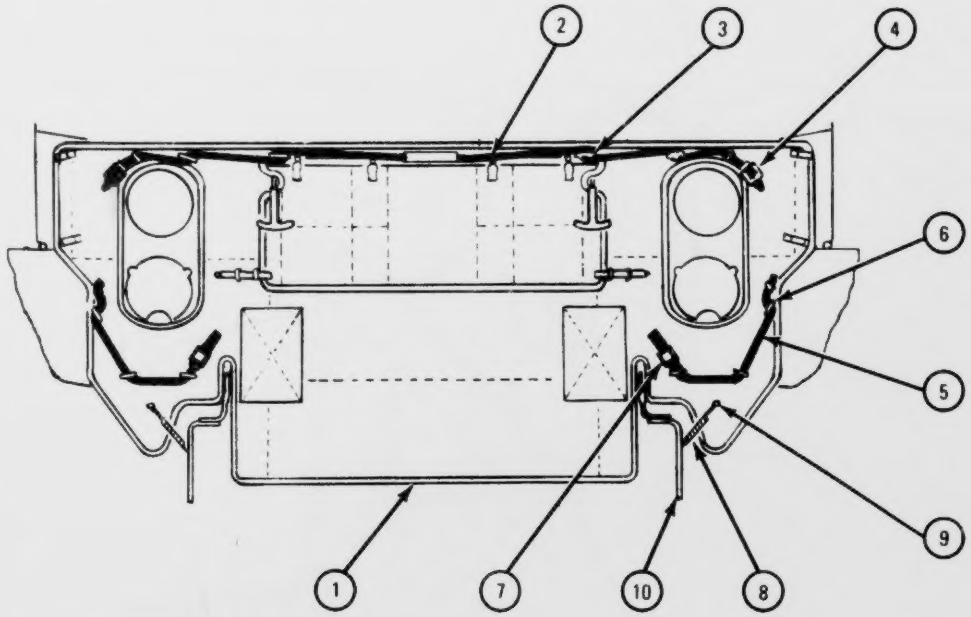


TA 081641

FRAME 3

1. Put radiator cover (1) in place on truck as shown.
2. Lace strap (2) through loops (3) and buckle (4) as shown.
3. Lace strap (5) through loops (6) and buckle (7) as shown.
4. Put long end of retaining spring (8) through grommet (9).
5. Put loose end of retaining spring (8) through hole in frame side rail (10).
6. Do steps 2 through 5 again for other side of radiator cover (1).

IF TRUCK HAS SIDE PANEL COVERS, GO TO FRAME 4.
IF TRUCK HAS NO SIDE PANEL COVERS, GO TO FRAME 5

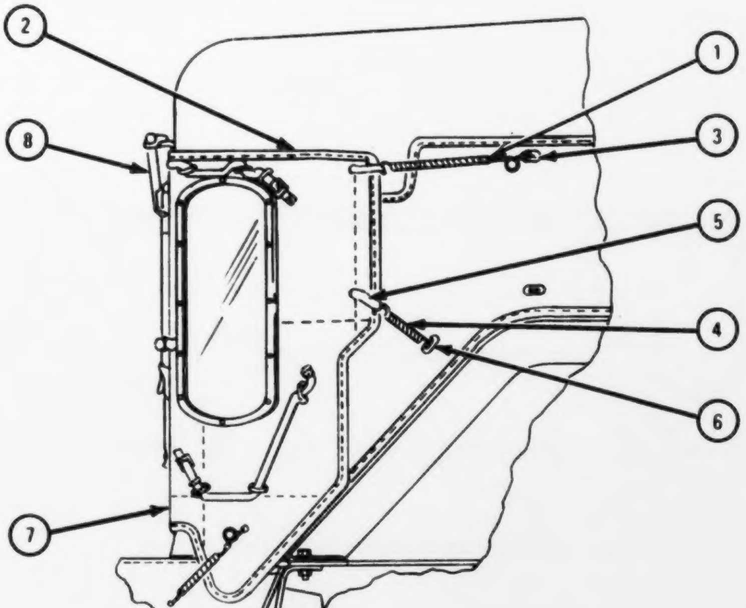


TA 081642

FRAME 4

1. Put short end of retaining spring (1) through cloth loop (2).
2. Put loose end of retaining spring (1) through side panel cover loop (3).
3. Put short end of retaining spring (4) through cloth loop (5).
4. Put loose end of retaining spring (4) through side panel cover loop (6).
5. Do steps 1 through 4 again for other side of radiator cover (7).
6. Close two hood latches (8).

END OF TASK

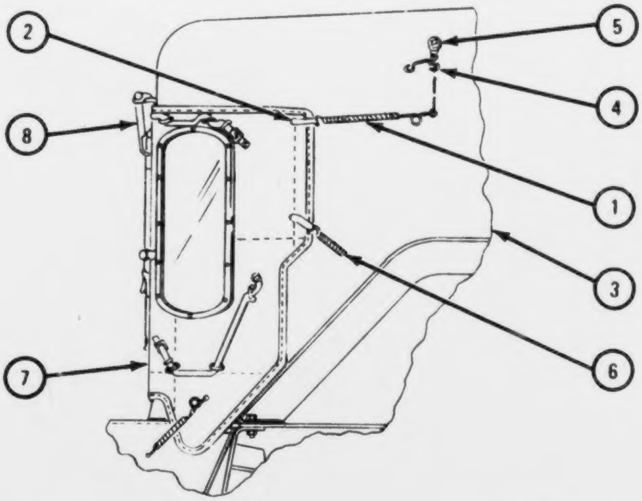


TA 081643

FRAME 5

1. Put short end of retaining spring (1) through cloth loop (2).
2. Pull retaining spring (1) across side panel (3) as shown. Using marking pen, mark side panel at end of retaining spring. Let retaining spring hang from cloth loop (2).
3. Hold loop (4) against side panel (3) as shown, with center of loop over pen mark.
4. Using marking pen, mark locations of two screw holes of loop (4). Take off loop.
5. Using hammer and center punch, punch two screw hole locations marked in step 4.
6. Using drill and drill bit, drill two screw holes punched in step 5.
7. Hold loop (4) against side panel (3) and aline screw holes.
8. Using screwdriver, screw in and tighten two screws (5).
9. Put loose end of retaining spring (1) through cloth loop (4).
10. Do steps 1 through 9 again for retaining spring (6).
11. Do steps 1 through 10 again for other side of radiator cover (7).
12. Close two hood latches (8).

END OF TASK



TA 081644

19-14. RADIATOR COVER ASSEMBLY REPAIR. Refer to FM 43-3 for repair of radiator cover assembly.

19-15. SLAVE RECEPTACLE KIT INSTALLATION.

TOOLS: 7/16-inch wrench (2)
9/16-inch wrench

SUPPLIES: Slave receptacle kit

PERSONNEL: Two

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedures.

(1) Remove battery box cover. Refer to TM 9-2320-260-10.

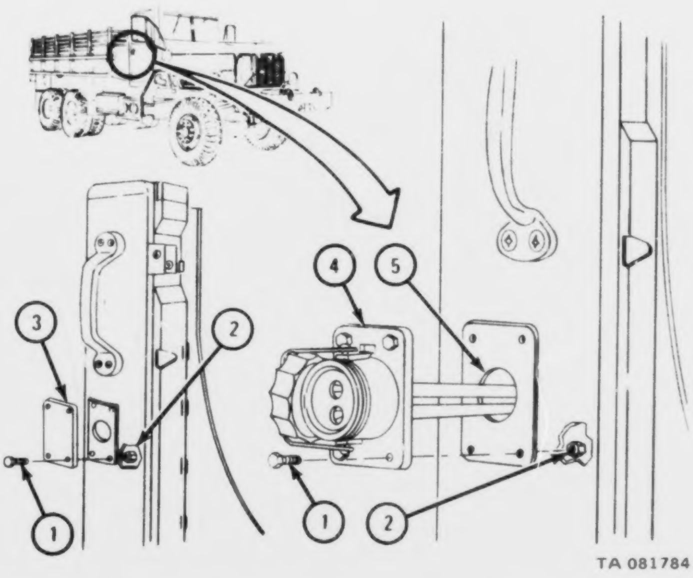
(2) Disconnect battery ground cable. Refer to TM 9-2320-260-20.

b. Installation.

FRAME 1

1. Open right side cab door.
2. Using 7/16-inch wrenches, unscrew and take out four screws (1) and nuts (2).
3. Take off cover plate (3).
4. Put cables of slave receptacle (4) through access hole (5) and hold slave receptacle in place.
5. Using 7/16-inch wrenches, screw in and tighten four screws (1) and nuts (2).

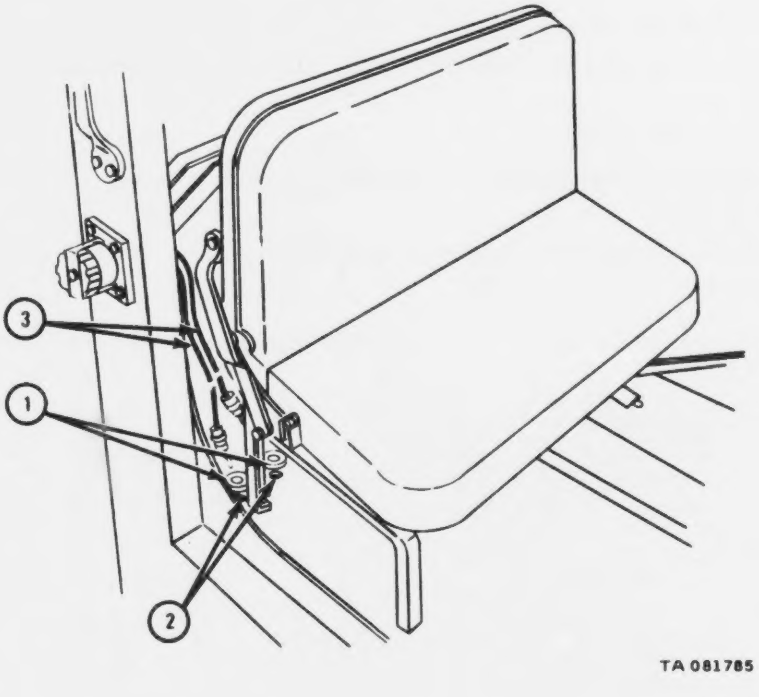
GO TO FRAME 2



FRAME 2

1. Put two grommets (1) in place in two holes (2).
2. Push two cables (3) all the way through two holes (2).
3. Close door.

GO TO FRAME 3



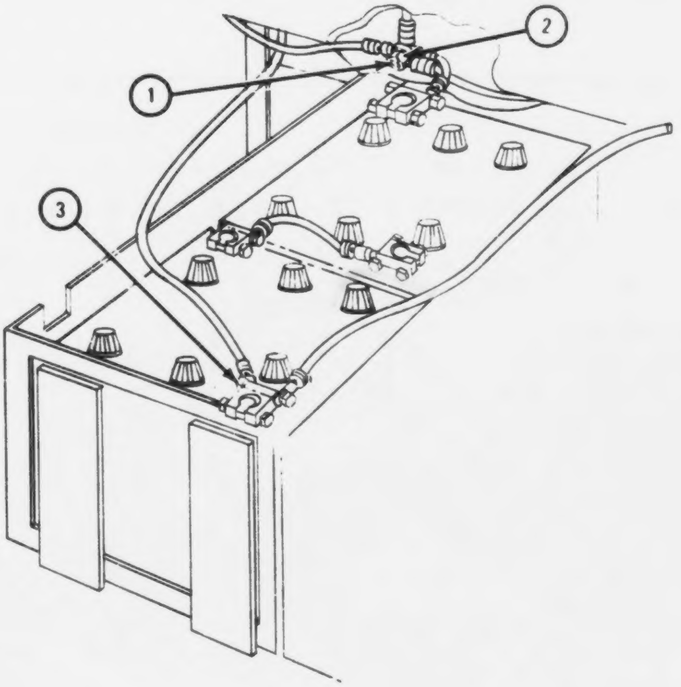
TA 081785

FRAME 3

Soldier A 1. Working under truck, using 9/16-inch wrench, hold screw (1).

Soldier B 2. Using 9/16-inch wrench, unscrew and take off nuts (2 and 3).

GO TO FRAME 4



TA 081786

FRAME 4

Soldier A 1. Put screw (1) through hole and hold with a 9/16-inch wrench.

Soldier B 2. Put negative cable (2), (short cable), in place as shown.

3. Using 9/16-inch wrench, screw on and tighten nut (3).

4. Put positive cable (4), (long cable), in place as shown.

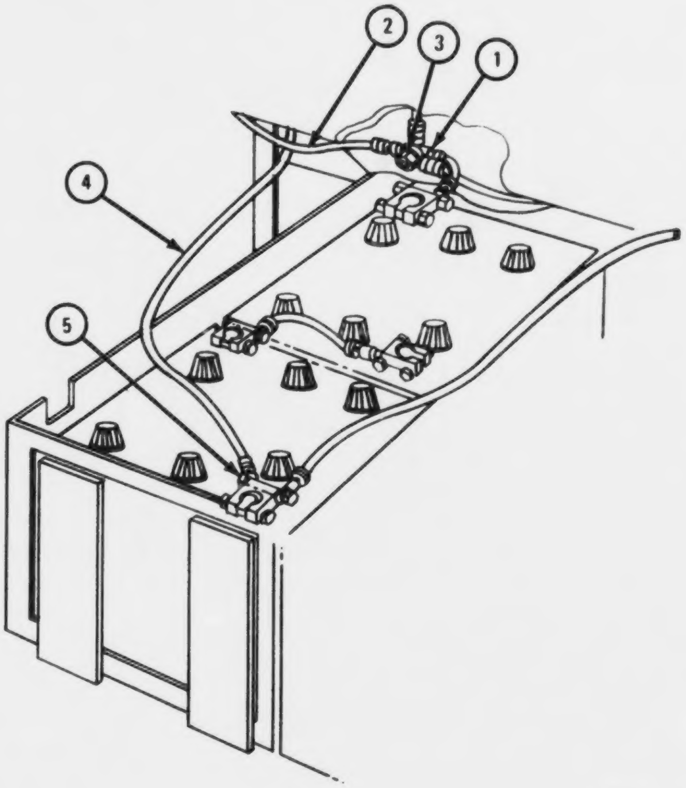
5. Using 9/16-inch wrench, screw on and tighten nut (5).

NOTE

Follow-on Maintenance Action Required:

1. Replace battery box cover. Refer to TM 9-2320-260-10.
2. Connect battery ground cable. Refer to TM 9-2320-260-20.

END OF TASK



TA 081787

Section III. DEEP WATER FORDING KIT

19-16. DEEP WATER FORDING KIT INSTALLATION (ALL TRUCKS EXCEPT TRUCK M812A1).

TOOLS: Open end wrench set NSN 5120-00-148-7918
Flat-tip screwdriver
Cross-tip screwdriver (Phillips type)
3/8-inch drive ratchet
Vise grips
Pliers
Drill bits (2)
Drill
Center punch
Hammer

SUPPLIES: Deep water fording kit, pn 116645 33

PERSONNEL: Two

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedures.

(1) Open hood. Refer to TM 9-2320-260-10.

(2) Remove cab tunnel. Refer to TM 9-2320-260-20.

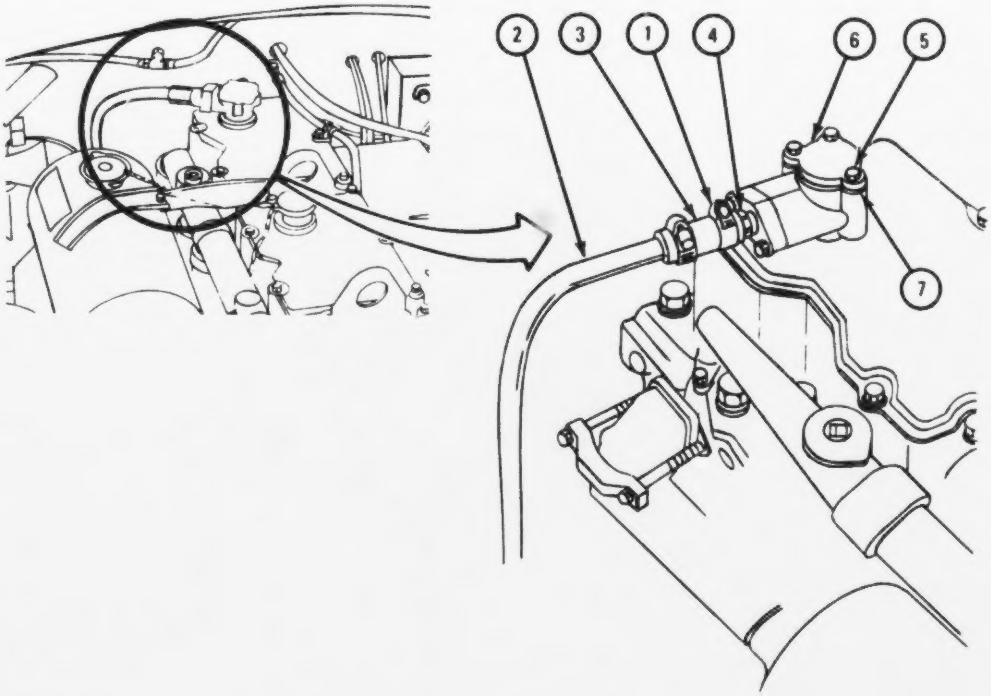
b. Installation.

(1) Draft tube and pressurization valve.

FRAME 1

1. Using flat tip screwdriver, loosen clamp screw (1).
2. Pull off draft tube (2) and hose (3).
3. Using wrench, unscrew and take out connector (4).
4. Using wrench, unscrew and take out three screws (5).
5. Take off cap (6) and gasket (7). Throw away gasket.

GO TO FRAME 2

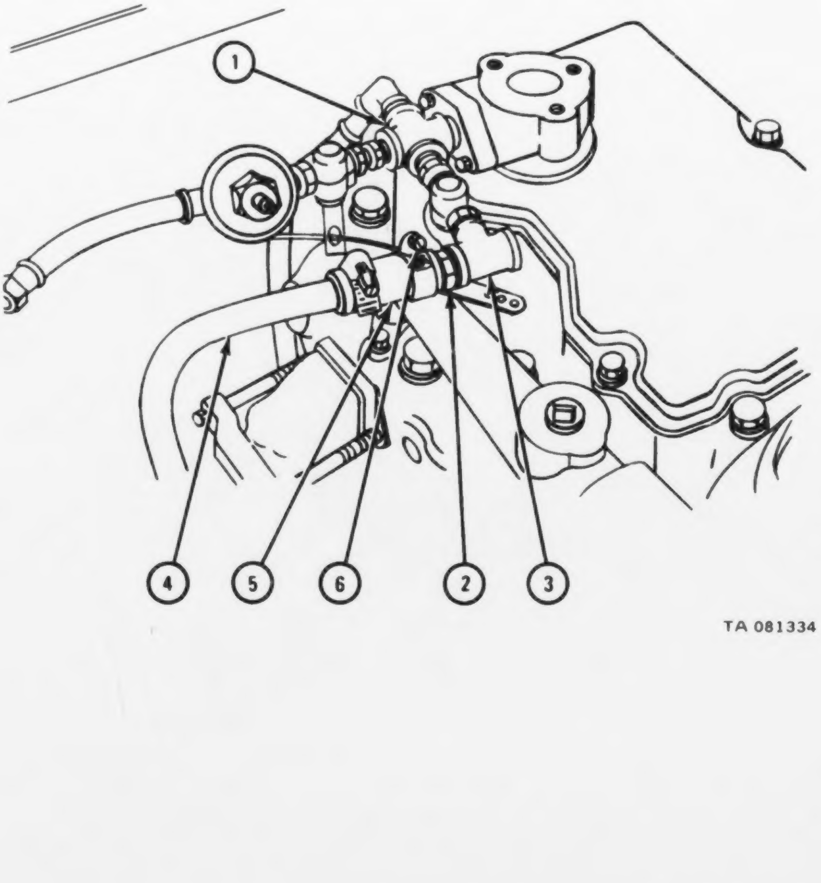


TA 081333

FRAME 2

1. Using wrench, screw in and tighten pressurization valve assembly (1).
2. Using wrench, screw in and tighten connector (2) onto tee (3). Connector is same one taken out in frame 1.
3. Push draft tube (4) and hose (5) onto connector (2) as shown.
4. Using flat-tip screwdriver, screw in and tighten clamp screw (6).

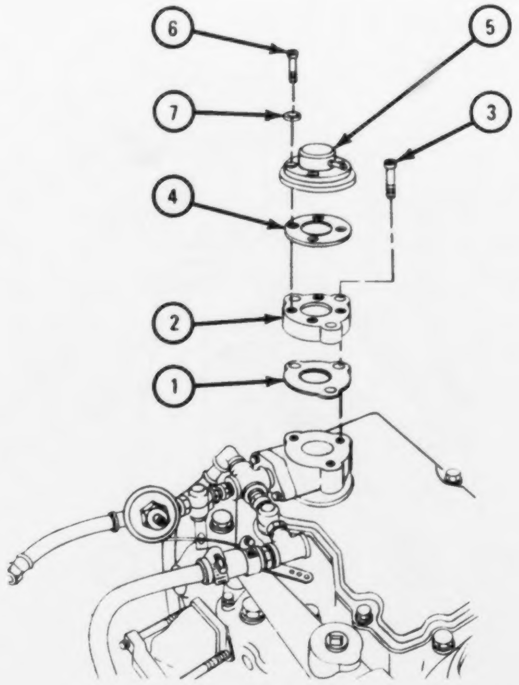
GO TO FRAME 3



FRAME 3

1. Put gasket (1) in place.
2. Put adapter (2) in place.
3. Using phillips screwdriver, screw in and tighten three screws (3).
4. Put gasket (4) in place.
5. Put relief valve (5) in place.
6. Using phillips screwdriver, screw in and tighten four screws (6) and four lockwashers (7).

GO TO FRAME 4

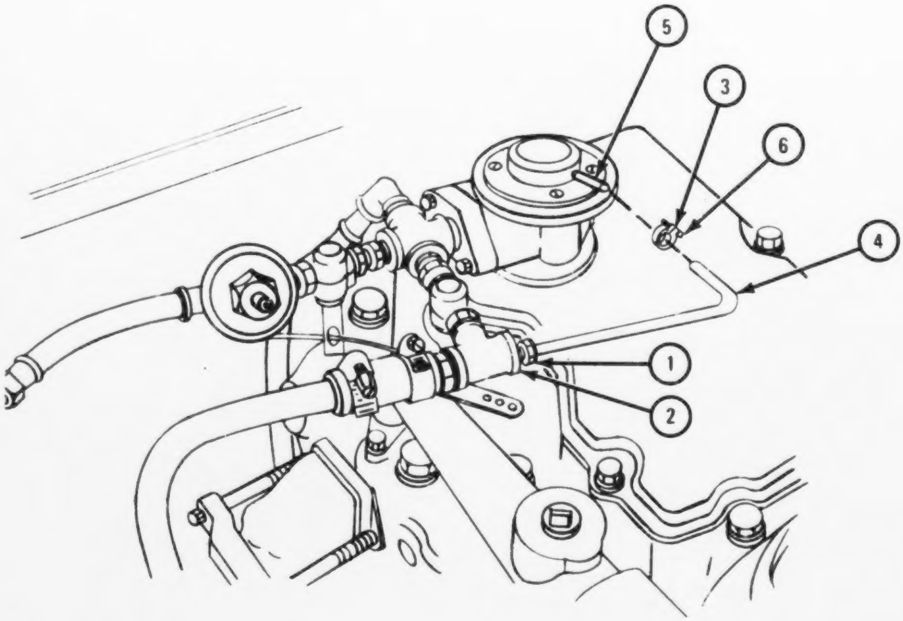


TA 081335

FRAME 4

1. Using wrench, screw in and tighten fitting (1) into tee fitting (2).
2. Put clamp (3) on end of hose (4).
3. Push hose (4) into place on relief valve (5).
4. Using flat-tip screwdriver, screw in and tighten clamp screw (6).

END OF TASK



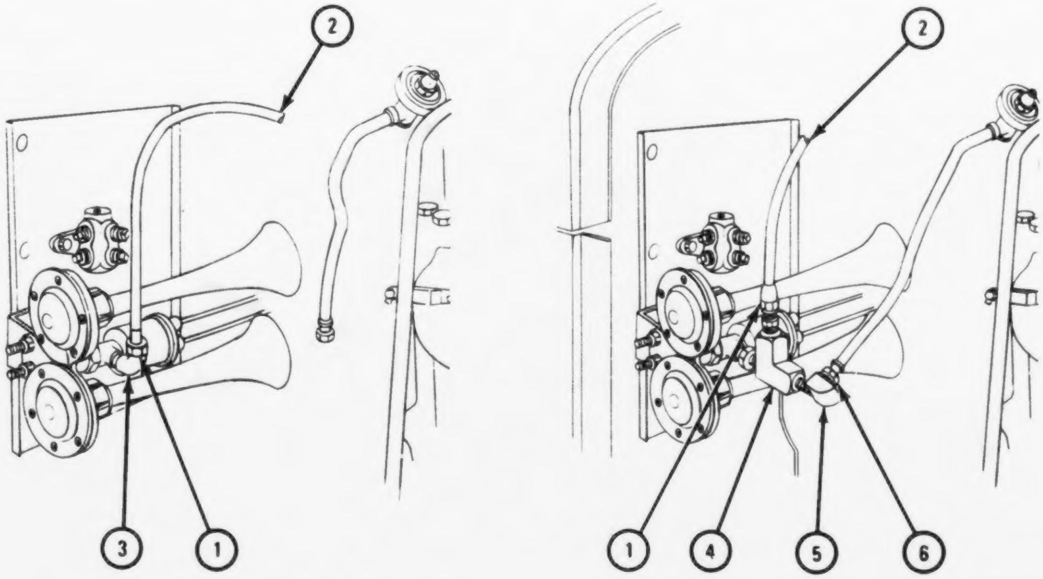
TA 081336

(2) Pressurization valve hoses.

FRAME 1

1. Using wrench, unscrew and take off fitting (1) and air supply line (2).
2. Using wrench, unscrew and take off elbow (3).
3. Using wrench, screw in and tighten tee fitting (4) as shown.
4. Using wrench, screw on and tighten fitting (1) and air supply line (2) as shown.
5. Using wrench, screw in and tighten elbow (5) as shown.
6. Using wrench, screw on and tighten short pressurization valve hose fitting (6) as shown.

GO TO FRAME 2

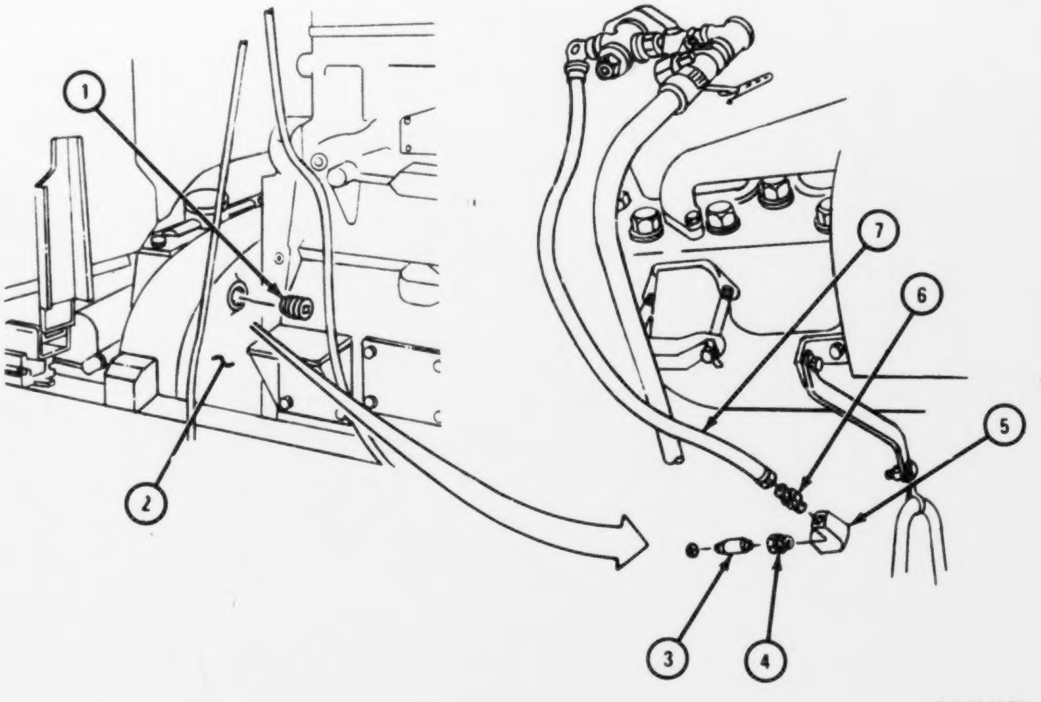


TA 081337

FRAME 2

1. Using 3/8-inch drive ratchet, unscrew and take out plug (1) from flywheel housing (2).
2. Using vise grips, screw in and tighten nipple (3).
3. Using wrench, screw on and tighten reducer (4).
4. Using wrench, screw on and tighten elbow (5).
5. Using wrench, screw in and tighten adapter (6).
6. Using wrench, screw on and tighten long pressurization valve hose (7) fitting.

END OF TASK

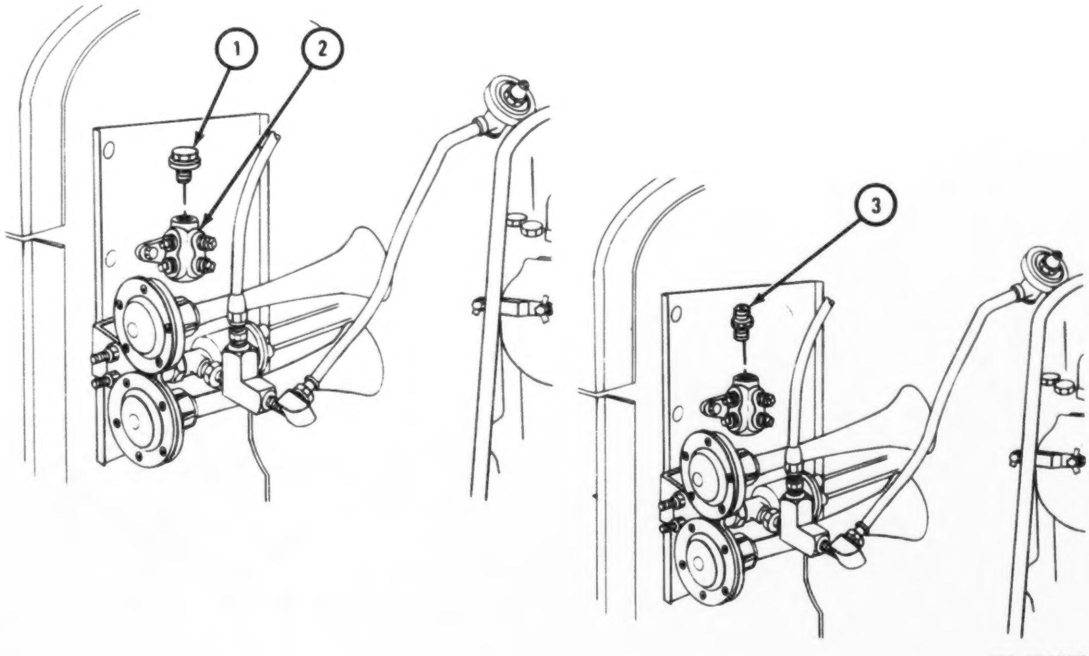


(3) Vent lines.

FRAME 1

1. Using wrench, unscrew and take out breather (1) from manifold (2).
2. Using wrench, screw in and tighten adapter (3).

GO TO FRAME 2

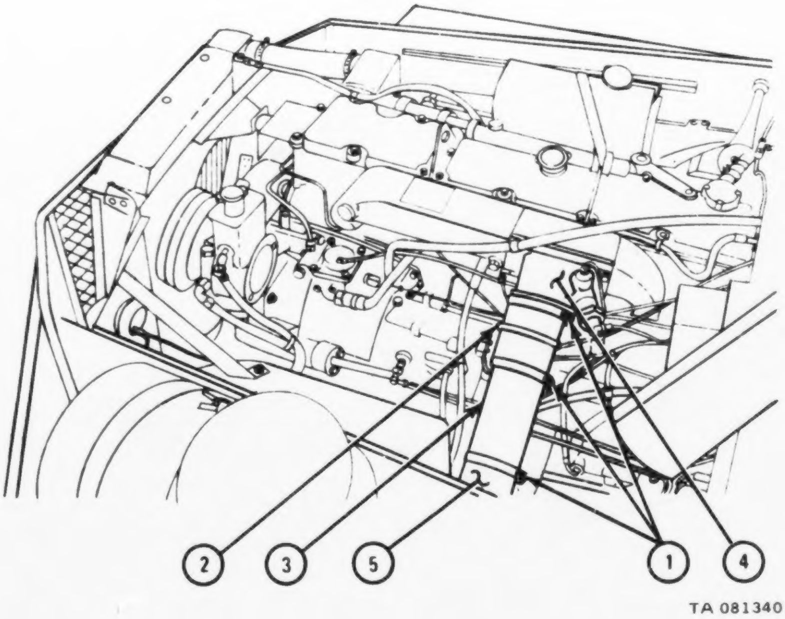


TA 081339

FRAME 2

1. Using wrench, loosen three clamp screws (1).
2. Pull down boot (2).
3. Pull outlet tube (3) away from manifold (4).
4. Take off boot (2).
5. Pull outlet tube (3) out of boot (5).

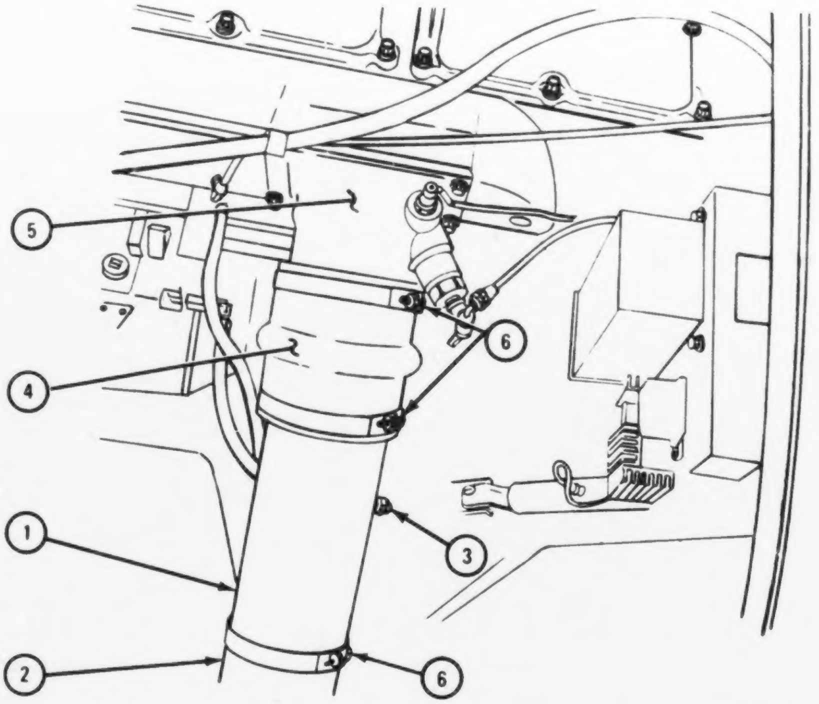
GO TO FRAME 3



FRAME 3

1. Put tube assembly (1) in place in boot (2). Adapter (3) must be toward rear of truck.
2. Slide boot (4) onto tube assembly (1).
3. Put tube assembly (1) and boot (4) into place on manifold (5).
4. Using wrench, tighten three clamp screws (6).

GO TO FRAME 4

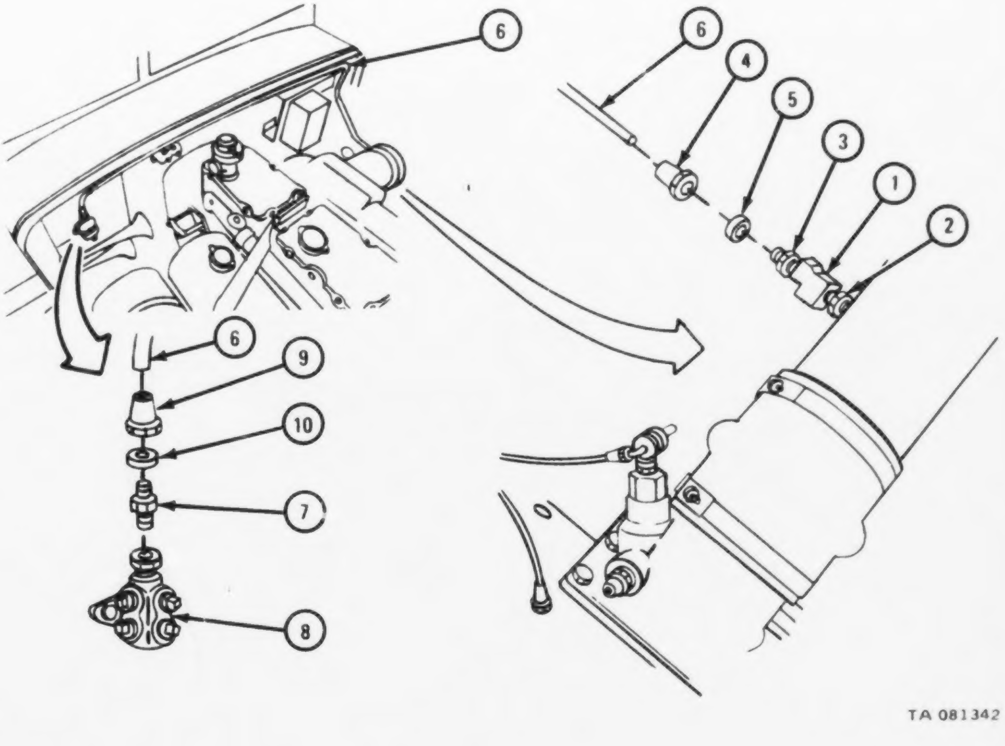


TA 081341

FRAME 4

1. Using wrench, screw on and tighten tee fitting (1) onto adapter (2).
2. Using wrench, screw in and tighten adapter (3).
3. Put coupling nut (4) and ferrule (5) in place on air manifold-to-air cleaner vent tube (6). Put tube in place on adapter (3).
4. Using wrench, screw on and tighten coupling nut (4).
5. Using wrench, screw in and tighten adapter (7) into air manifold (8).
6. Put coupling nut (9) and ferrule (10) on other end of tube (6). Put tube in place on adapter (7).
7. Using wrench, screw on and tighten coupling nut (9).

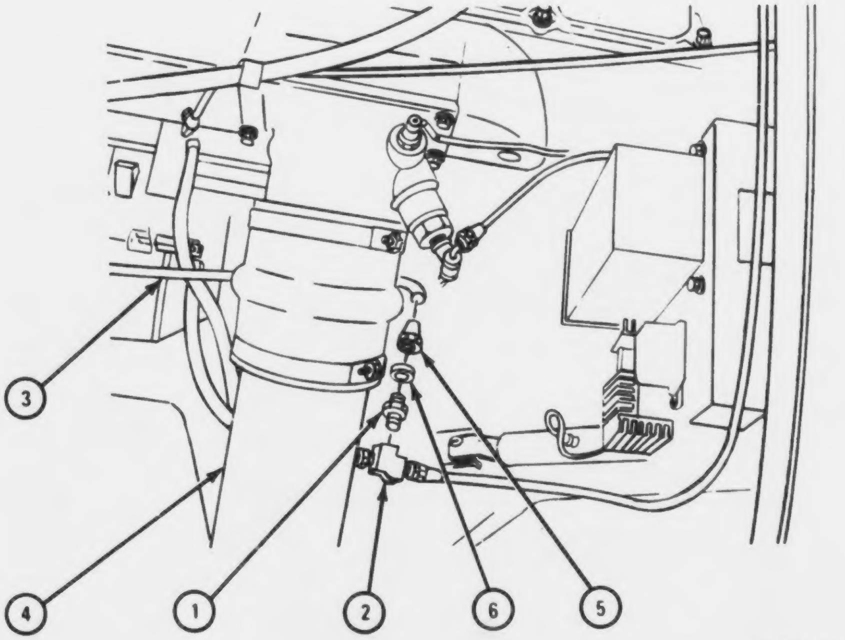
GO TO FRAME 5



FRAME 5

1. Using wrench, screw in and tighten adapter (1) into tee fitting (2).
2. Put power steering pump-to-air cleaner tube (3) under outlet tube (4).
3. Put coupling nut (5), and ferrule (6) in place on tube (3) and put tube on adapter (1).
4. Using wrench, screw on and tighten coupling nut (5).

GO TO FRAME 6

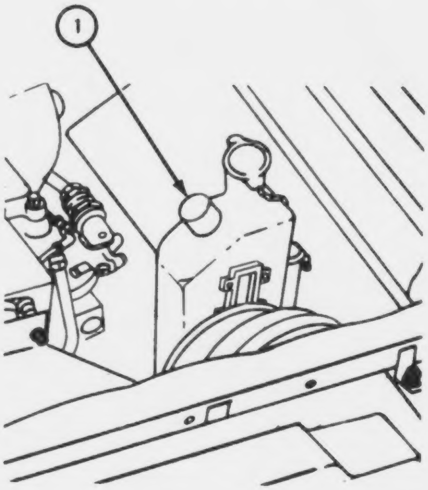


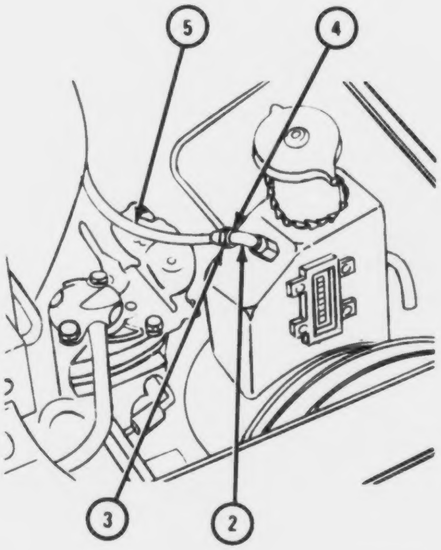
TA 081343

FRAME 6

1. Using wrench, unscrew and take out breather (1).
2. Using pliers, screw on and tighten elbow (2).
3. Put coupling nut (3) and ferrule (4) on power steering pump-to-air-cleaner tube (5), Put tube in place on elbow (2).
4. Using wrench, screw on and tighten coupling nut (3).

GO TO FRAME 7



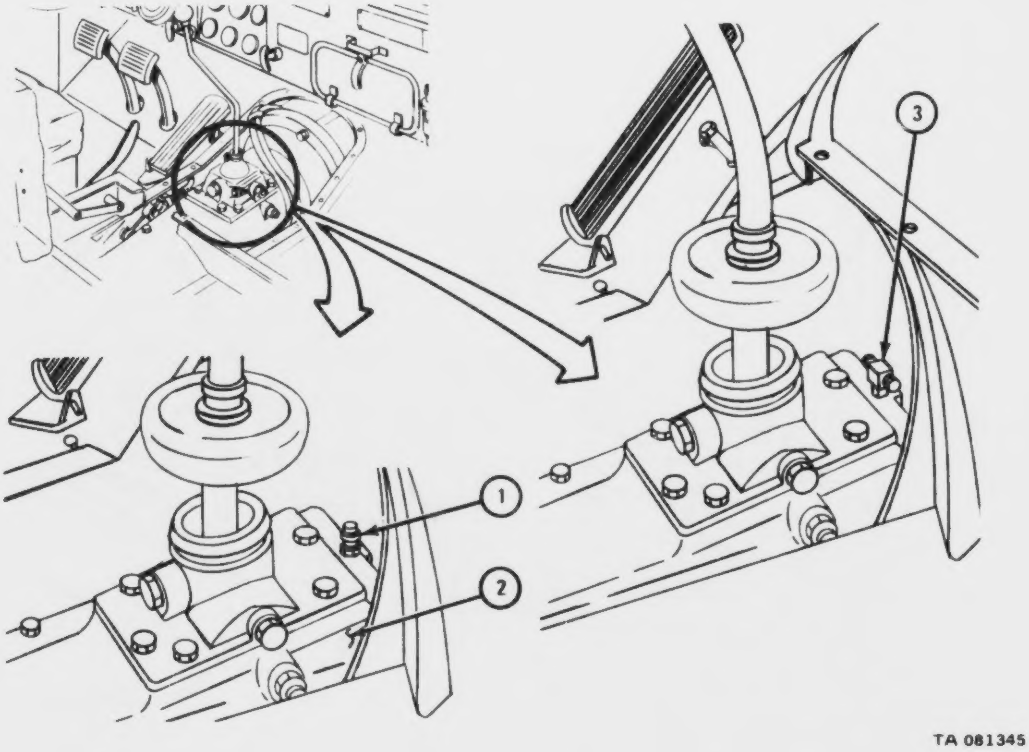


TA 081344

FRAME 7

1. Working inside cab and using wrench, unscrew and take out vent valve (1) from transmission (2).
2. Using wrench, screw in and tighten tee fitting (3).

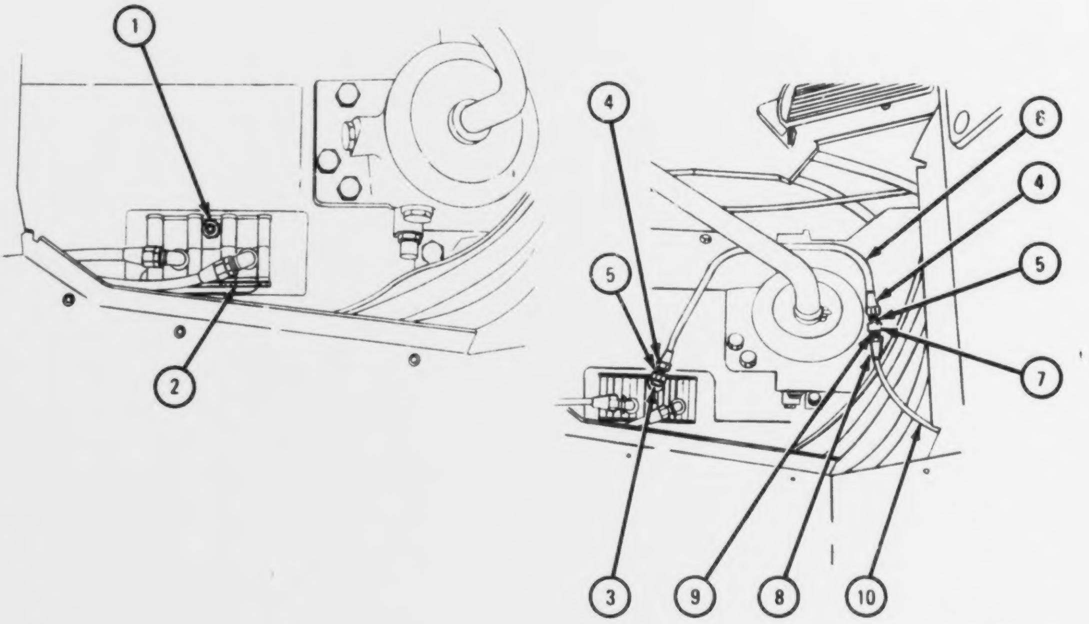
GO TO FRAME 8



FRAME 8

1. Using wrench, unscrew and take out vent valve (1) from poppet valve assembly (2).
2. Using pliers, screw in and tighten elbow (3).
3. Put coupling nuts (4) and ferrules (5) on each end of poppet valve-to-transmission tee tube (6). Put tube in place.
4. Using wrench, screw on and tighten coupling nuts (4) to elbow (3) and tee fitting (7).
5. Put coupling nut (8) and ferrule (9) on transmission breather tube (10). Put one end of tube on tee fitting (7) and pass other end into engine compartment.
6. Using wrench, screw on and tighten coupling nut (8).

GO TO FRAME 9

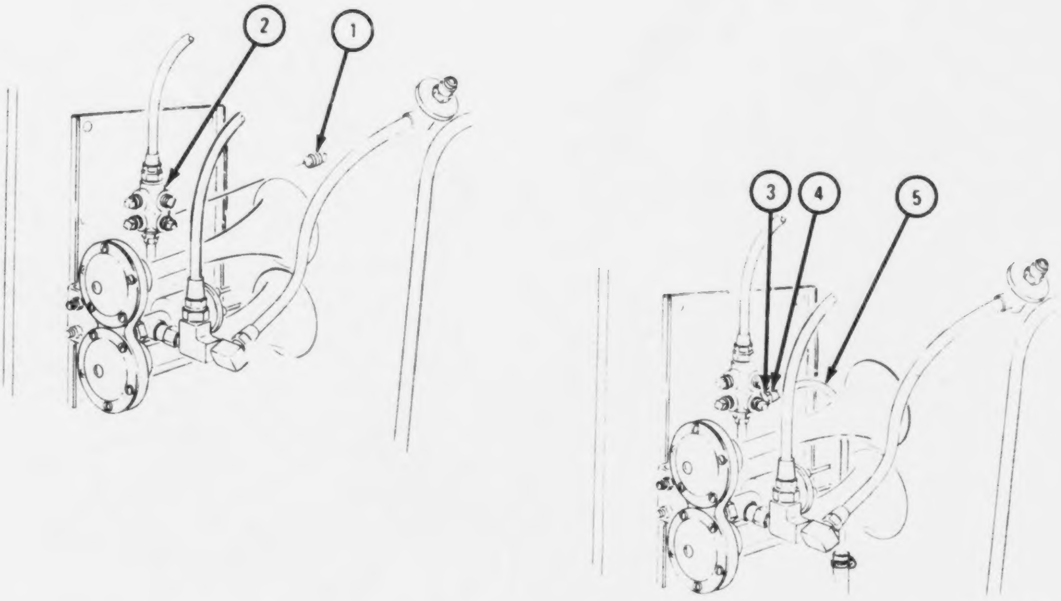


TA 081346

FRAME 9

1. Working in engine compartment using wrench, unscrew and take out lower left plug (1) from air manifold (2).
2. Using wrench, screw in and tighten adapter (3).
3. Using wrench, screw on and tighten coupling nut (4) and air manifold-to-transmission vent tube (5) to adapter (3).

GO TO FRAME 10

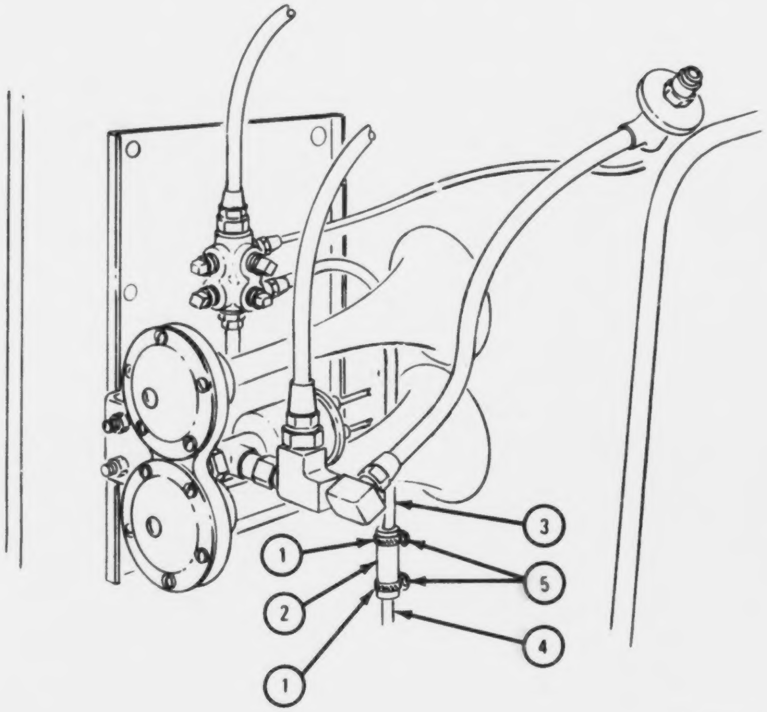


TA 081347

FRAME 10

1. Put two clamps (1) on rubber hose (2).
2. Put rubber hose (2) on ends of air manifold-to-transmission vent tube (3) and transmission breather tube (4).
3. Using flat-tip screwdriver, tighten two clamp screws (5).

GO TO FRAME 11

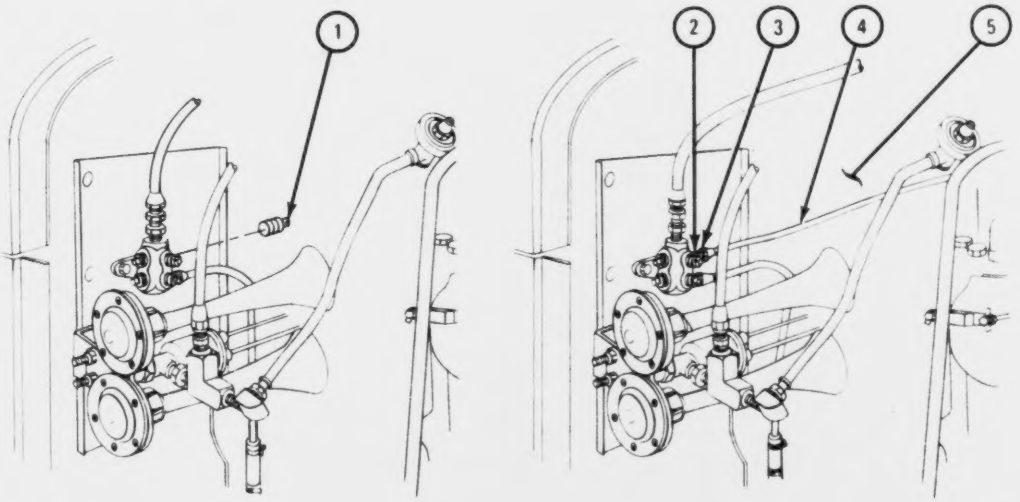


TA 081348

FRAME 11

1. Using wrench, unscrew and take out upper left plug (1).
2. Using wrench, screw in and tighten adapter (2).
3. Using wrench, screw in and tighten coupling nut (3), and air manifold-to-master cylinder tube (4) to adapter (2). Run tube across firewall (5) and back under driver's side of cab.

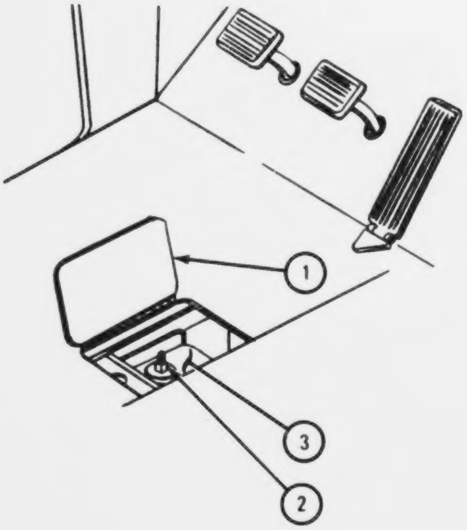
GO TO FRAME 12

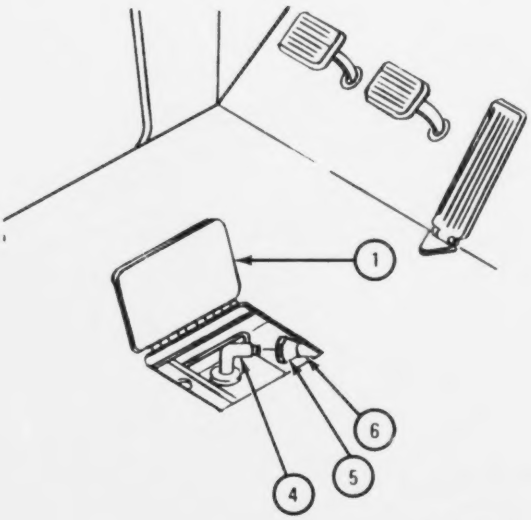


FRAME 12

1. Go into cab and open master cylinder access hatch (1).
2. Using wrench, unscrew and take out vent valve (2) from master cylinder (3).
3. Using wrench, screw in and tighten elbow (4).
4. Using wrench, screw in and tighten coupling nut (5) and air manifold-to-master cylinder tube (6) to elbow (4).
5. Close master cylinder access hatch (1).

END OF TASK





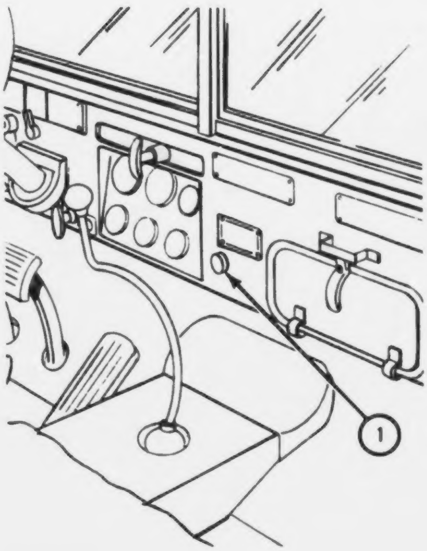
TA 081350

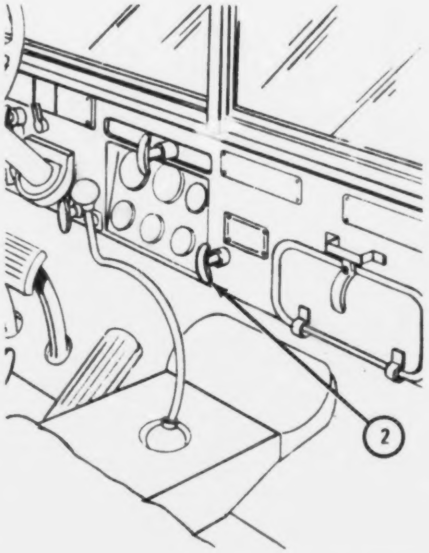
(4) Control cable.

FRAME 1

1. Working inside cab and using flat-tip screwdriver, pry out plug (1).
2. Put control cable (2) through plug hole.

GO TO FRAME 2

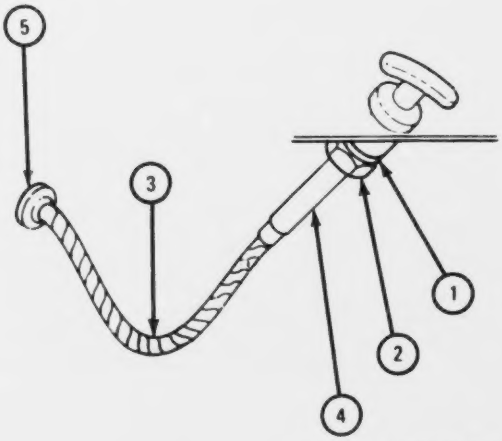




FRAME 2

1. Slide washer (1) and nut (2) up cable (3) and over cable shaft (4).
2. Using wrench, screw on and tighten washer (1) and nut (2).
3. Put cable (3) through grommet (5) in firewall.

GO TO FRAME 3

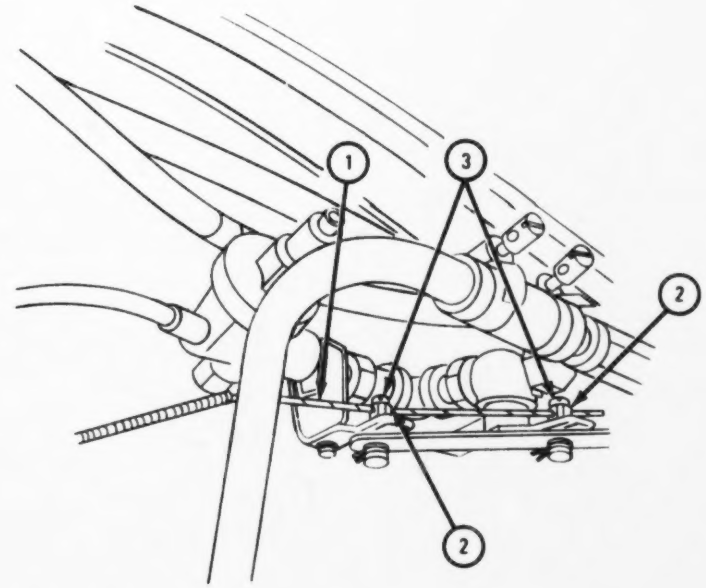


TA 081352

FRAME 3

1. Working in engine compartment, put cable (1) through two swivels (2).
2. Using flat-tip screwdriver, screw in and tighten two screws (3).

END OF TASK



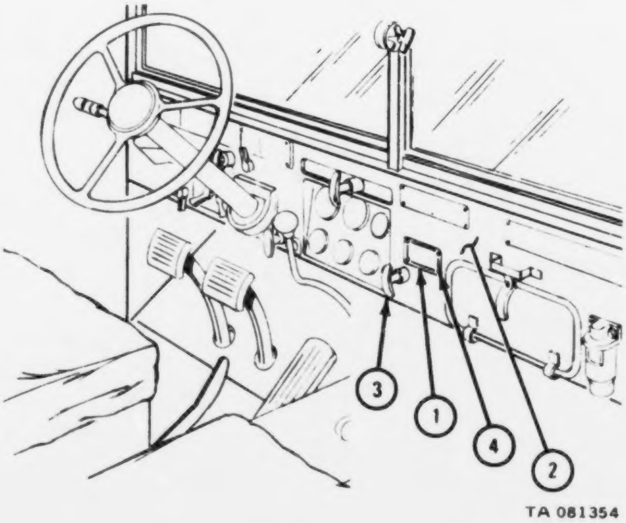
TA 081353

(5) Data plate.

FRAME 1

1. Working inside cab, put data plate (1) in place 4 3/4 inches up from bottom of instrument panel (2), directly above control handle (3).
2. Using punch and hammer, mark four holes (4).
3. Take away data plate (1).
4. Using drill bit and drill, drill four holes where marks were made in step 2.

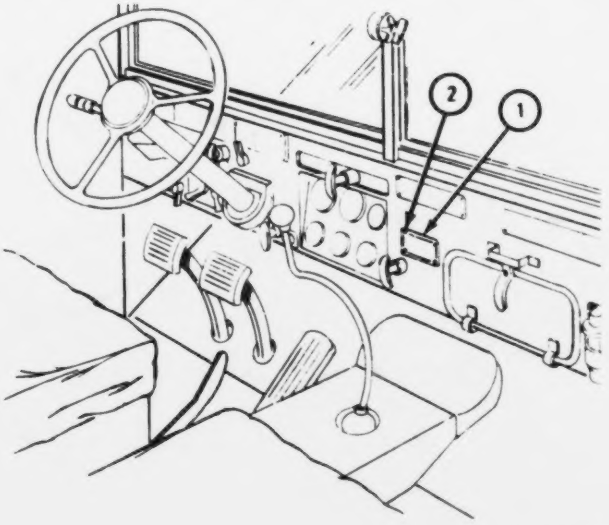
GO TO FRAME 2



FRAME 2

1. Put data plate (1) in place.
2. Using flat-tip screwdriver, screw in and tighten four screws (2).

END OF TASK



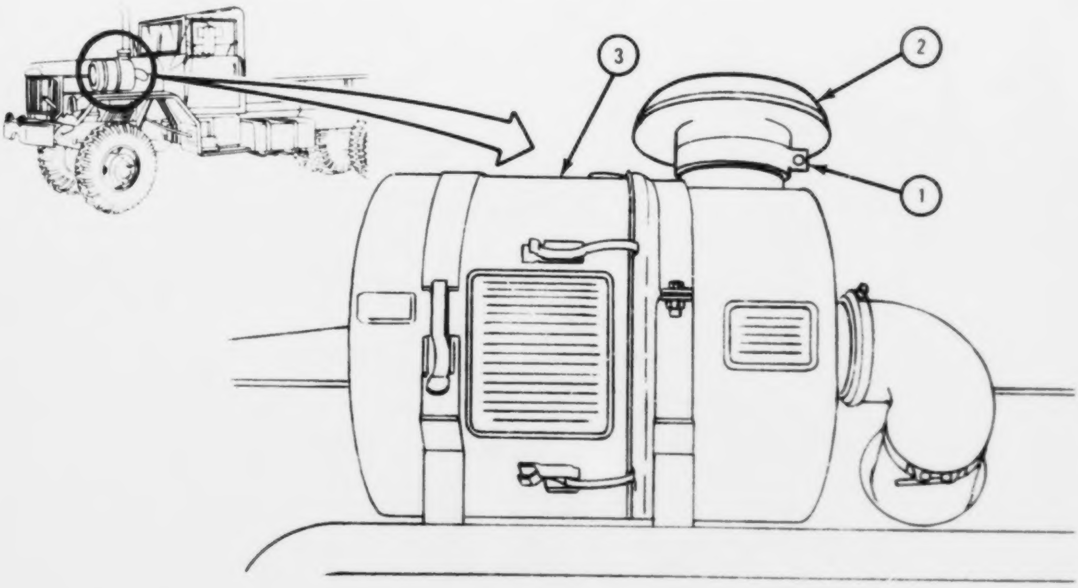
TA 081355

(6) Air cleaner snorkle.

FRAME 1

1. Using wrench, loosen clamp screw (1).
2. Take cap (2) off of air cleaner (3).

GO TO FRAME 2

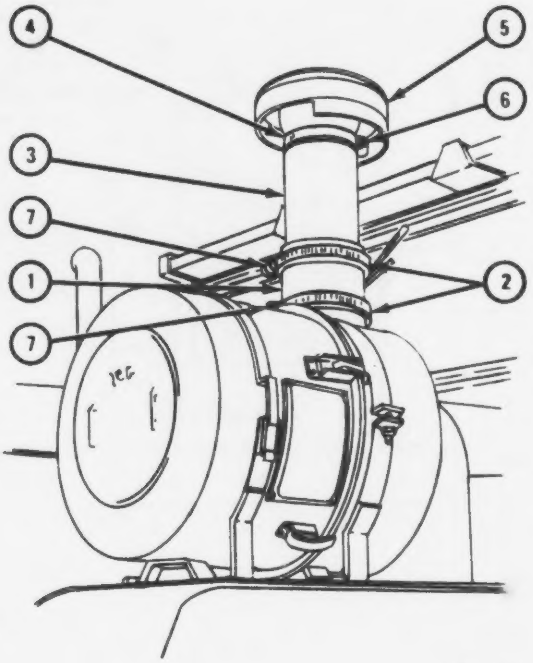


TA 049019

FRAME 2

1. Put hose (1) in place.
2. Slide two clamps (2) onto hose (1).
3. Slide snorkle (3) into hose (1).
4. Slide clamp (4) onto snorkle (3).
5. Put cap (5) on snorkle (3).
6. Slide clamp (4) up onto cap (5).
7. Using wrench, screw in and tighten clamp screw (6).
8. Using flat-tip screwdriver, screw in and tighten two clamp screws (7).

END OF TASK



TA 081356

(7) Holddown clamps.

FRAME 1

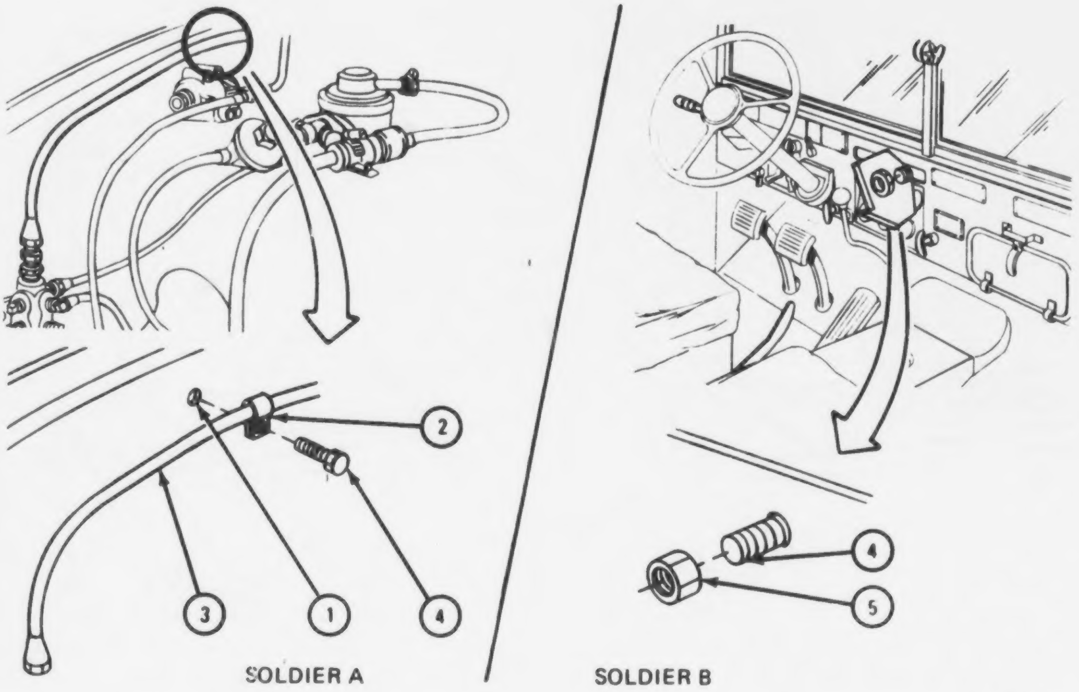
Soldier A 1. Using drill and drill bit, drill hole (1) as shown.

2. Put clamp (2) on tube (3).

3. Put screw (4) through hole (1) and clamp (2). Using wrench, hold screw (4).

Soldier B 4. Using wrench, screw on and tighten nut (5) on screw (4).

GO TO FRAME 2

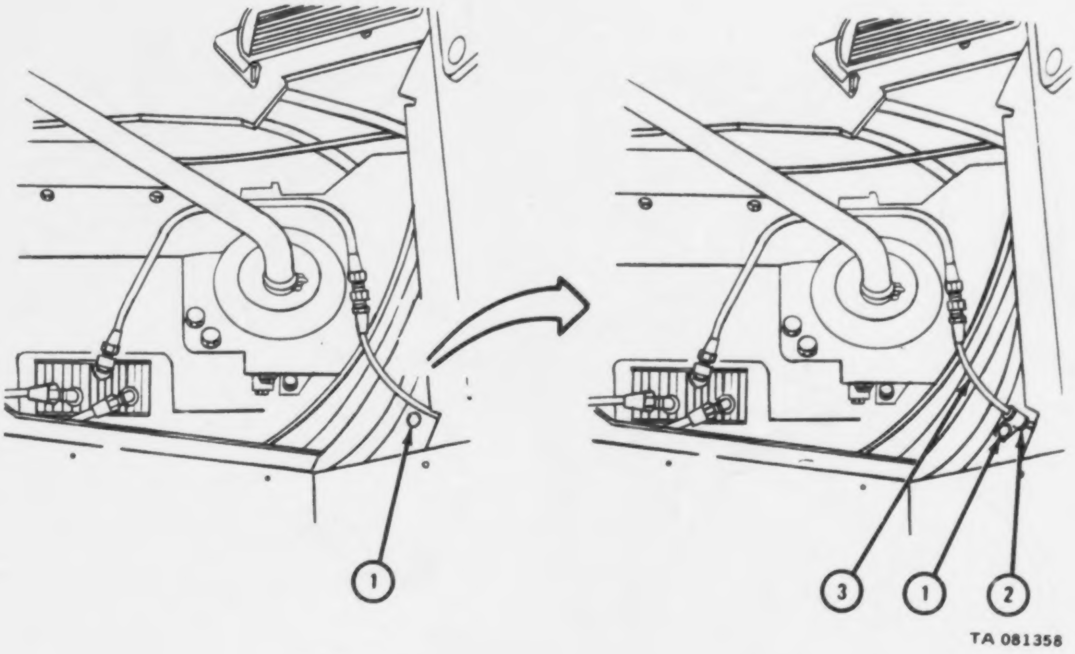


TA 081357

FRAME 2

1. Using wrench, unscrew and take out screw (1).
2. Put clamp (2) on transmission breather tube (3).
3. Put screw (1) through clamp (2).
4. Using wrench, screw in and tighten screw (1).

GO TO FRAME 3



FRAME 3

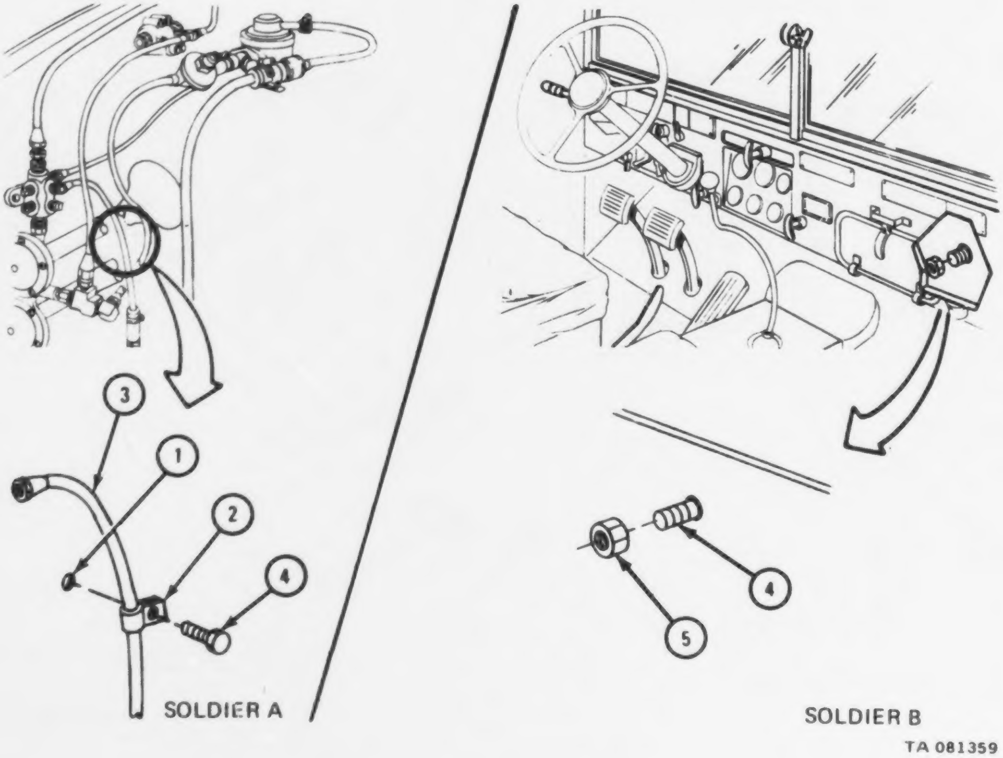
Soldier A 1. Using drill and drill bit, drill hole (1) as shown.

2. Put clamp (2) in place on tube (3).

3. Put screw (4) through hole (1) and clamp (2). Using wrench, hold screw.

Soldier B 4. Using wrench, screw on and tighten nut (5) on screw (4).

GO TO FRAME 4


3
1
2
4
SOLDIER A
4
5
SOLDIER B
TA 081359

FRAME 4

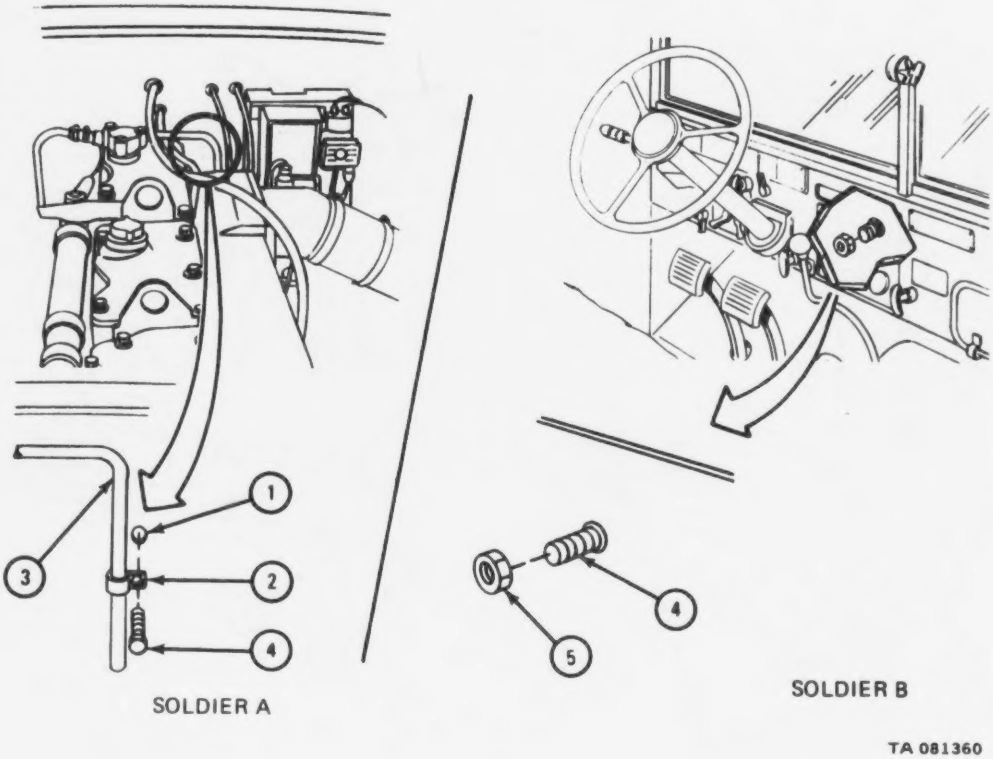
Soldier A 1. Using drill and drill bit, drill hole (1) as shown.

2. Put clamp (2) in place on tube (3).

3. Put screw (4) through hole (1) and clamp (2). Using wrench, hold screw (4).

Soldier B 4. Using wrench, screw on and tighten nut (5) on screw (4).

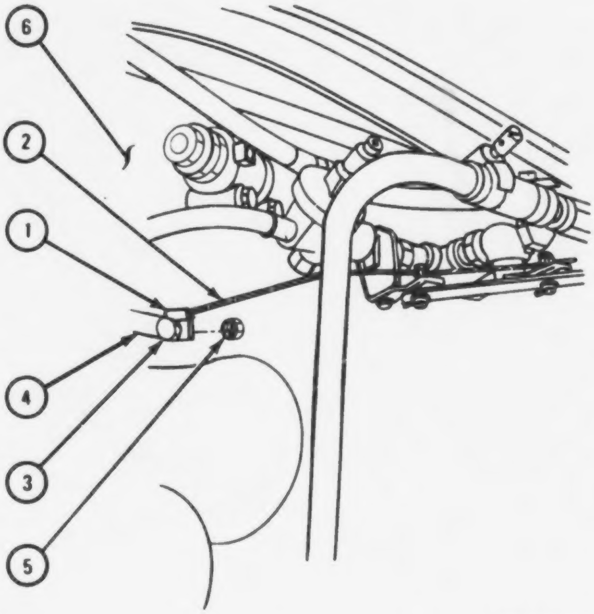
GO TO FRAME 5


1
3
2
4
SOLDIER A
4
5
SOLDIER B
TA 081360

FRAME 5

1. Put clamp (1) on control cable (2).
2. Put screw (3) through bracket (4) and clamp (1).
3. Using wrenches, screw on and tighten nut (5).
4. Hold bracket (4) flat on firewall (6) as shown.
5. Using center punch and hammer, mark hole in bracket (4).
6. Using drill and drill bit, drill hole where mark was made in step 5.

GO TO FRAME 6



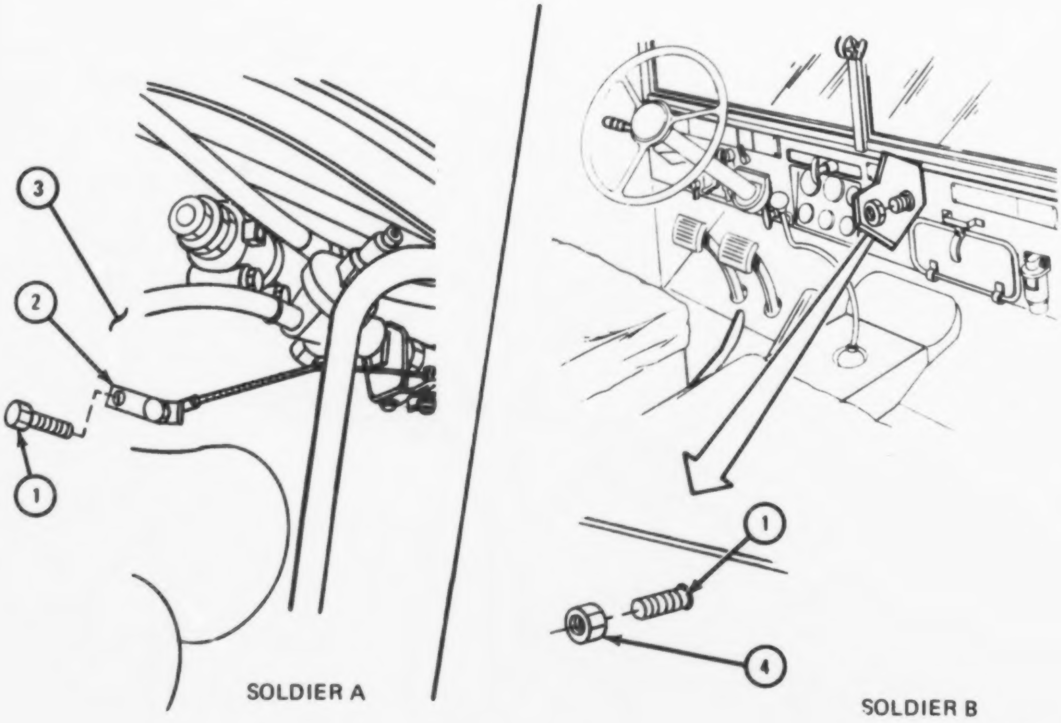
TA 081361

FRAME 6

Soldier A 1. Put screw (1) through bracket (2) and firewall (3).

Soldier B 2. Using wrench, screw on and tighten nut (4) on screw (1).

END OF TASK


3
2
1
SOLDIER A
1
4
SOLDIER B

TA 081362

(8) Adjustment.

FRAME 1

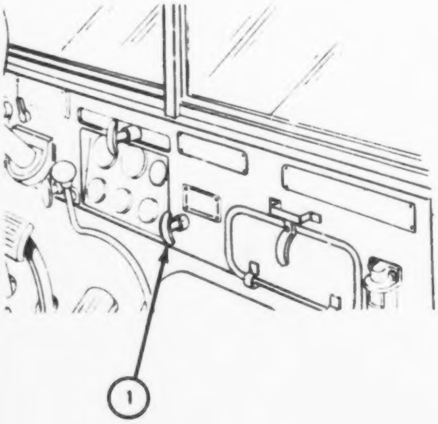
1. Working in cab, push in control handle (1).
2. Working in engine compartment using flat-tip screwdriver, loosen two screws (2).
3. Push control lever (3) toward front of truck.
4. Using flat-tip screwdriver, screw in and tighten two screws (2).
5. Using wrenches, loosen screw (4).
6. Slide cable (5) toward cab of truck until there is no slack in cable between bracket (6) and lever (3).
7. Using wrenches, screw in and tighten screw (4).

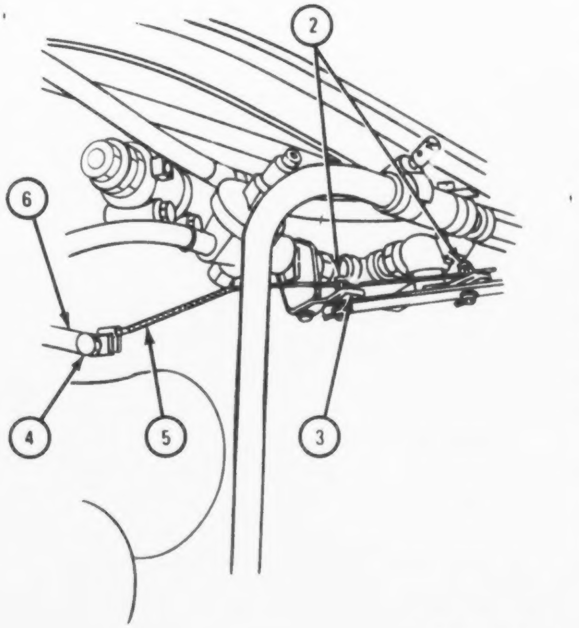
NOTE

Follow-on Maintenance Action Required:

1. Close hood. Refer to TM 9-2320-260-10.
2. Replace cab tunnel. Refer to TM 9-2320-260-20.

END OF TASK





TA 081363

Section IV. SPECIAL PURPOSE KITS

19-17. HAND AIR BRAKE KIT INSTALLATION AND TEST (ALL TRUCKS EXCEPT TRUCKS M815, M818, AND M819).

TOOLS: General mechanic's tool kit, NSN 5180-00-209-6225

SUPPLIES: Hand air brake kit, pn 11665814
Clean rags
Soapy water

PERSONNEL: Two

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedures.

(1) Open hood and left side panel. Refer to TM 9-2320-260-10.

(2) Vent air system pressure. Refer to TM 9-2320-260-20.

b. Installation.

FRAME 1

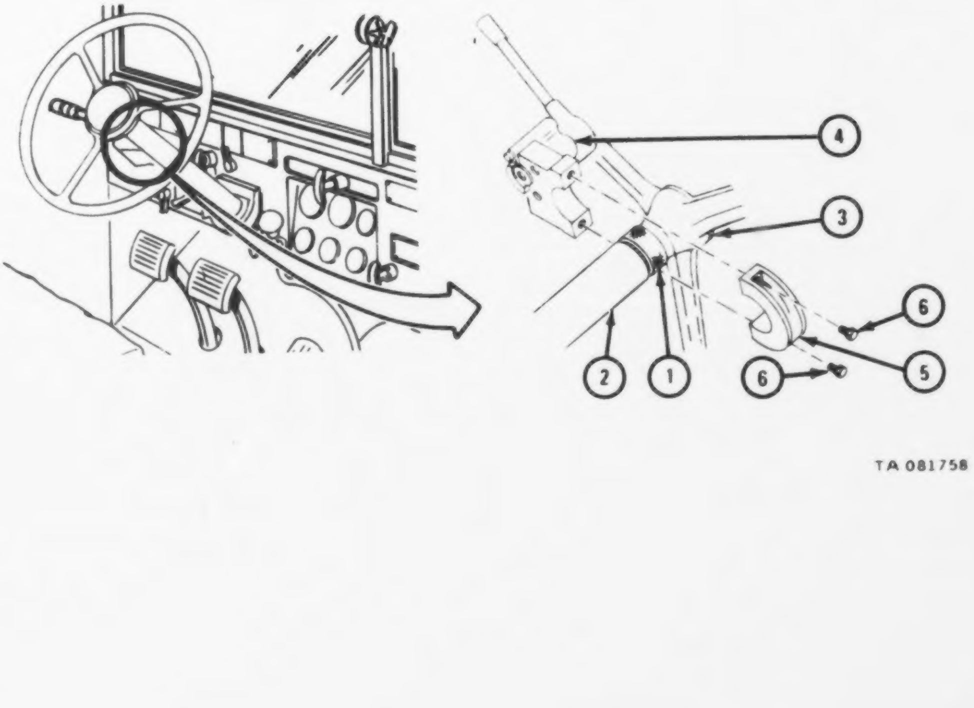
Soldier A 1. Wrap webbing (1) around steering column (2) just below steering wheel hub (3).

2. Put hand control valve assembly (4) on right side of steering column (2) over webbing (1) and hold it in place.

Soldier B 3. Put mounting cap (5) in place as shown and aline screw holes.

4. Using socket wrench and ratchet, screw in and tighten two capscrews (6).

GO TO FRAME 2



TA 081758

FRAME 2

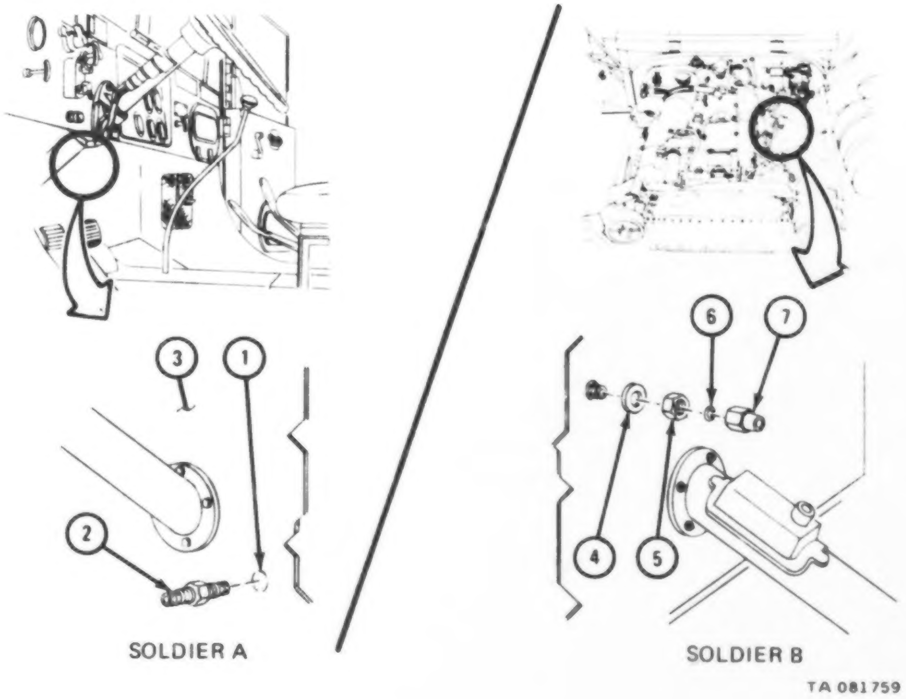
Soldier A 1. Working in cab and using hammer and punch, drive out knockout plug (1).

2. Put long end of firewall union (2) through hole in firewall (3). Using wrench, hold firewall union. Tell soldier B when ready.

Soldier B 3. Working in engine compartment and using wrench, screw on and tighten washer (4) and nut (5).

4. Put in compression fitting (6) and screw on, but do not tighten, adapter (7).

GO TO FRAME 3



FRAME 3

Soldier A 1. Using combination box and open end box wrench and open end wrench, hold elbow fitting (1) and unscrew and take off tube nut (2).

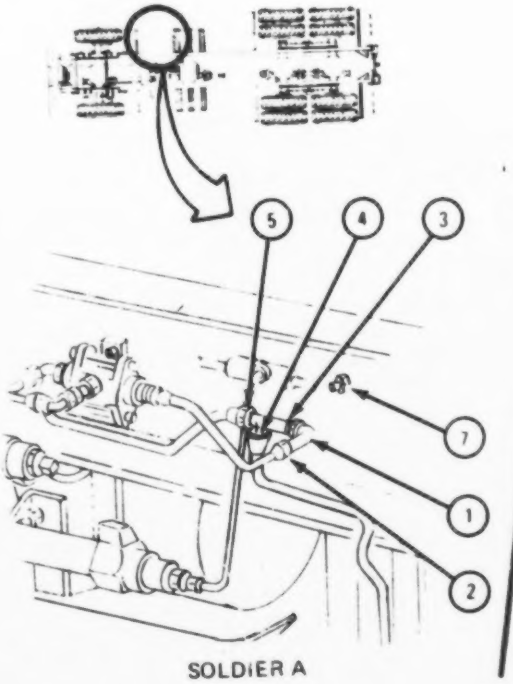
2. Using open end wrench, unscrew and take off elbow fitting (1).

3. Using combination box and open end box wrench open end wrench, hold tee fitting (3) and unscrew and take off tube nut (4) and tube nut (5).

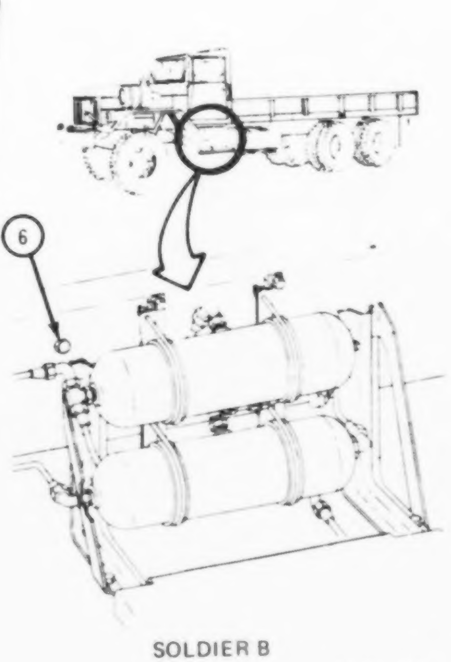
Soldier B 4. Using open end wrench, hold capscrew (6). Tell soldier A when ready.

Soldier A 5. Using open end wrench, unscrew and take out nut (7).

GO TO FRAME 4



SOLDIER A



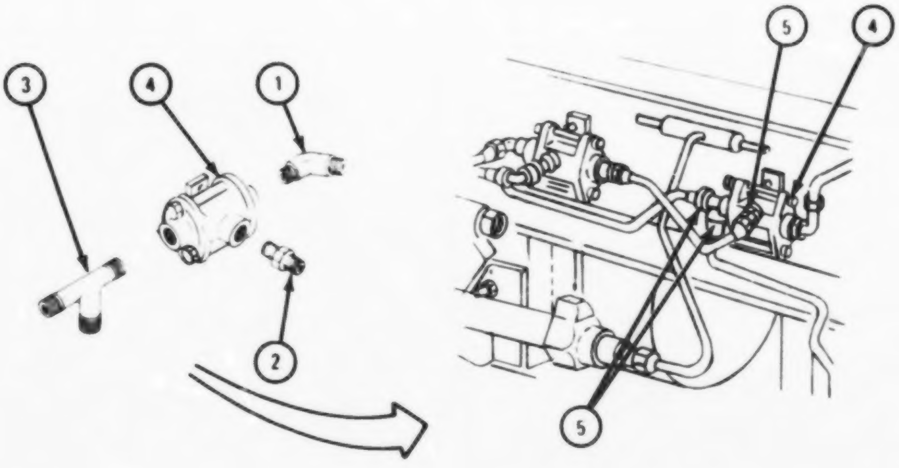
SOLDIER B

TA 081760

FRAME 4

1. Using wrench, screw in and tighten elbow fitting (1). Using wrench, screw in and tighten adapter fitting (2). Face elbow fitting as shown.
2. Using wrench, screw in and tighten tee fitting (3). Face tee fitting straight down.
3. Put double check valve (4) in place as shown and screw on three tube nuts (5).

GO TO FRAME 5



TA 081761

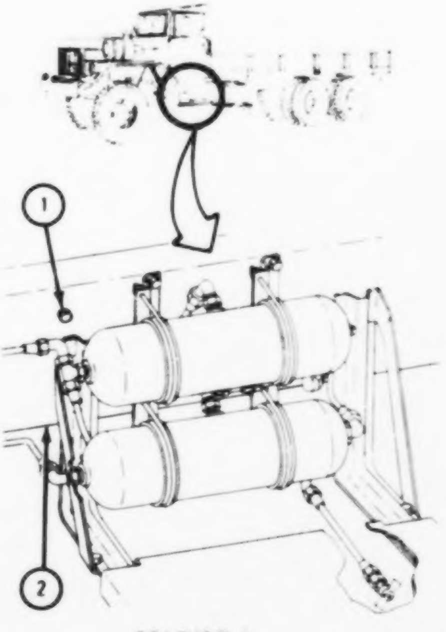
FRAME 5

Soldier A 1. Put capscrew (1) through chassis rail (2) and double check valve (3). Using wrench, hold capscrew and tell soldier B when ready.

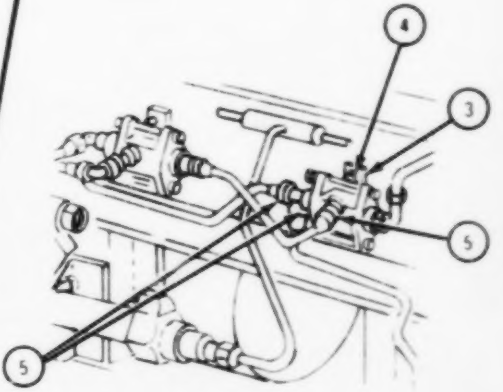
Soldier B 2. Using wrench, screw on and tighten nut (4).

3. Using combination box and open end box wrench, tighten three tube nuts (5).

GO TO FRAME 6



SOLDIER A



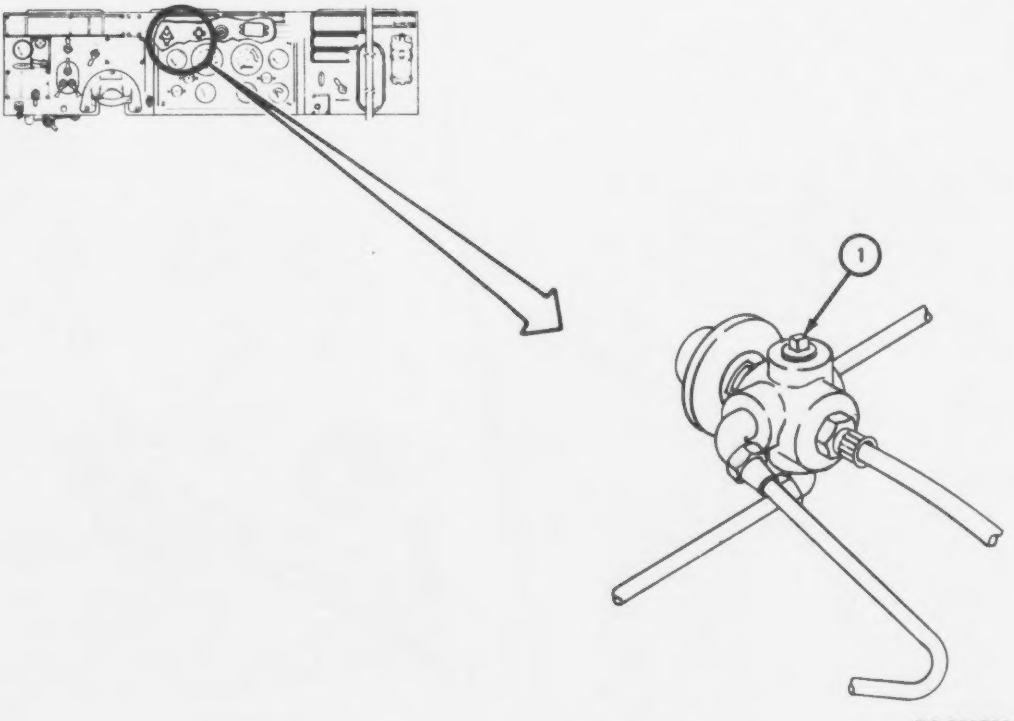
SOLDIER B

TA 081763

FRAME 6

1. Using wrench, unscrew and take out plug (1).

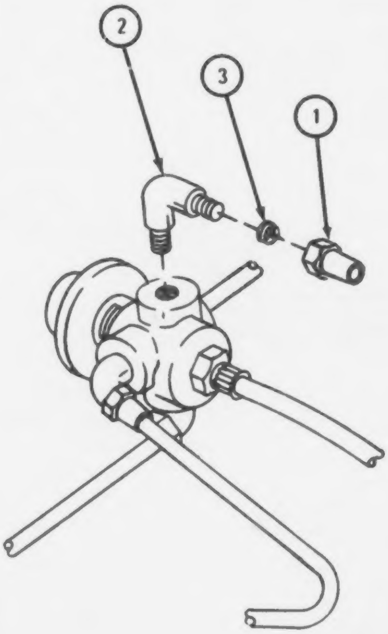
GO TO FRAME 7



FRAME 7

1. Unscrew and take off coupling nut (1) from elbow fitting (2). Take out compression fitting (3).
2. Using wrench, screw in and tighten elbow fitting (2) to position shown.

GO TO FRAME 8

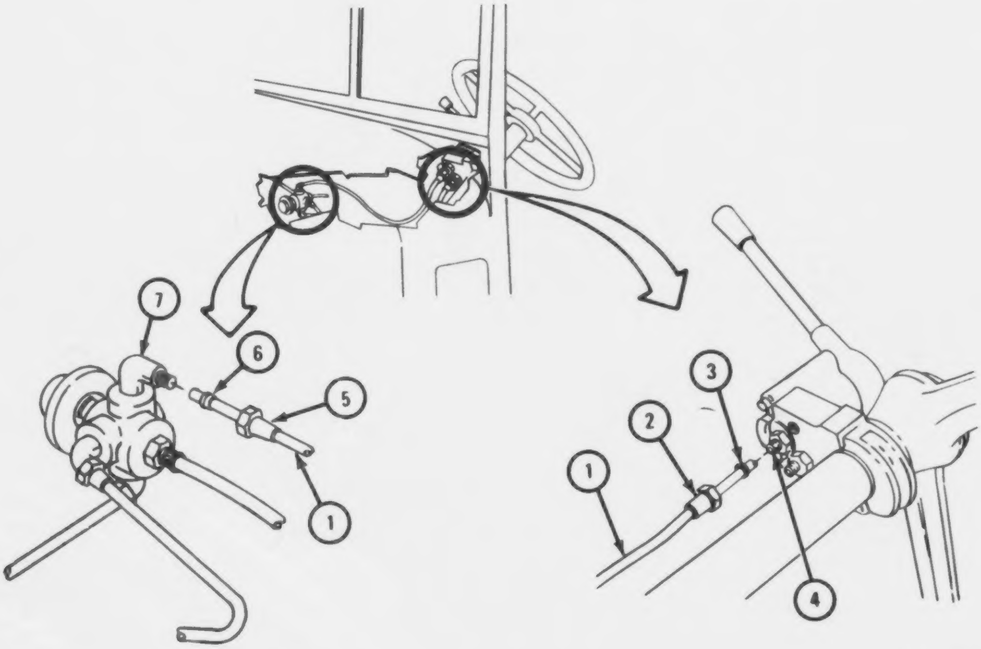


TA 081765

FRAME 8

1. Put 30-inch tube (1) in position as shown.
2. Slide coupling nut (2), tapered end first, onto tube (1). Put compression fitting (3) onto end of tube.
3. Push end of tube (1) into adapter fitting (4). Using wrench, screw on and tighten coupling nut (2).
4. Slide coupling nut (5), tapered end first, onto tube (1). Put compression fitting (6) onto end of tube.
5. Push end of tube (1) into elbow fitting (7). Using wrench, screw on and tighten coupling nut (5).

GO TO FRAME 9

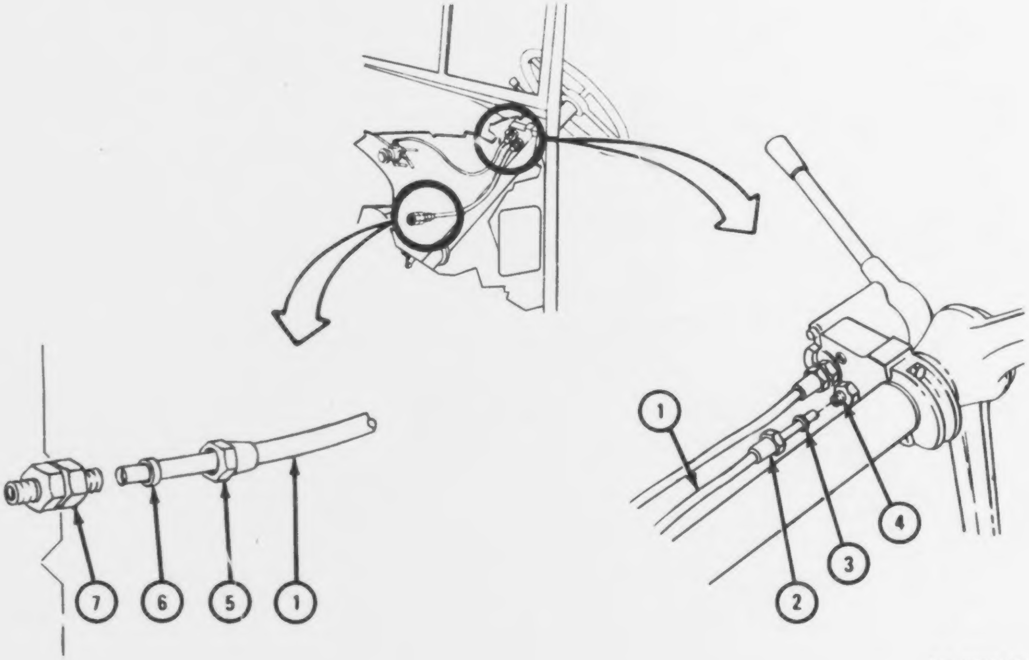


TA 081766

FRAME 9

1. Put 25-inch tube (1) in position as shown.
2. Slide coupling nut (2), tapered end first, onto tube (1). Put compression fitting (3) onto end of tube.
3. Push end of tube (1) into adapter (4). Using wrench, screw on and tighten coupling nut (2).
4. Using wrench, unscrew and take off coupling nut (5). Take out compression fitting (6).
5. Slide coupling nut (5), tapered end first, onto tube (1). Put compression fitting (1) onto end of tube.
6. Push end of tube (1) into firewall union (7). Using wrench, screw on and tighten coupling nut (5).

GO TO FRAME 10

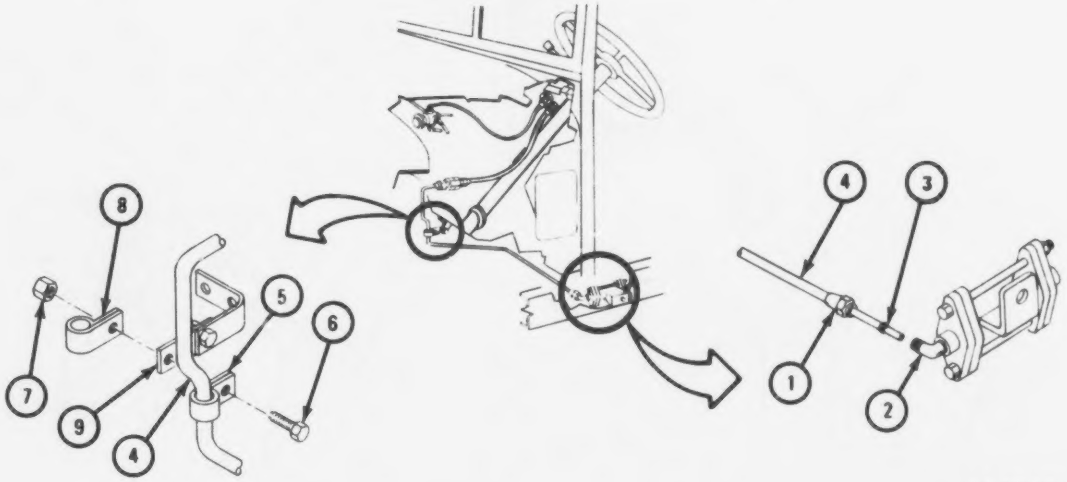


TA 081767

FRAME 10

1. Working under truck and using wrench, unscrew and take off coupling nut (1) from elbow fitting (2). Take out compression fitting (3).
2. Put 36-inch tube (4) in position as shown.
3. Slide coupling nut (1), tapered end first, onto tube (4). Put compression fitting (2) onto end of tube.
4. Push end of tube (4) into elbow fitting (2). Using wrench, screw on and tighten coupling nut (1).
5. Working in engine compartment, slide clamp (5) over tube (4) as shown.
6. Using wrenches, unscrew and take out screw (6) and nut (7).
7. Aline screw holes in two clamps (5 and 8) and clamp bracket (9). Put screw (6) through screw holes in two clamps and clamp bracket.
8. Using wrenches, screw in and tighten screw (6) and nut (7).

GO TO FRAME 11

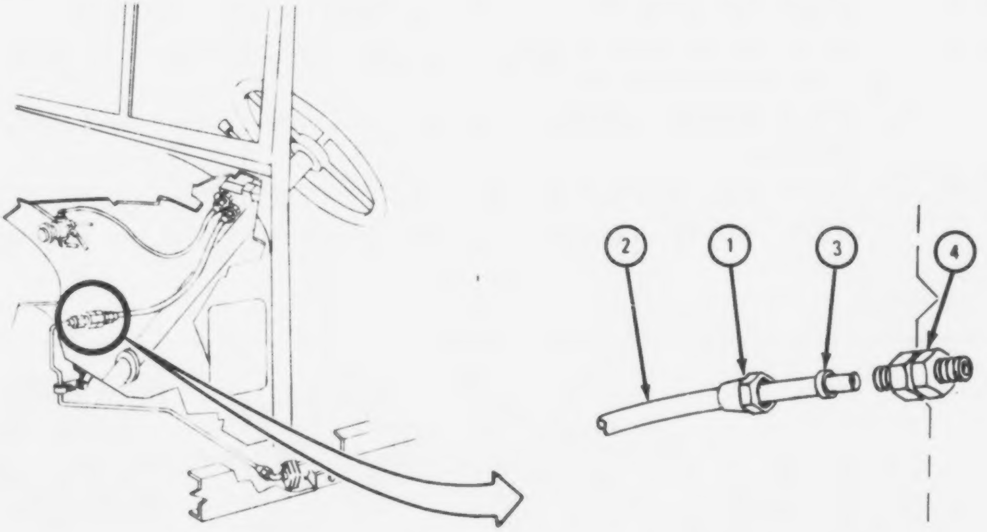


TA 081768

FRAME 11

1. Working in engine compartment, slide coupling nut (1), tapered end first, onto tube (2). Put compression fitting (3) onto end of tube.
2. Push end of tube (2) into firewall union (4). Using wrench, screw on and tighten coupling nut (1).

END OF TASK



TA 081769

c. Test.

FRAME 1

CAUTION

Fittings are made of soft brass. They can be stripped if tightened too much. Tighten fittings just enough to stop air from leaking.

Soldier A 1. Start engine and let engine idle for 3 to 5 minutes. Refer to TM 9-2320-260-10.

Soldier B 2. Working under truck, cover six connections (1) with soap suds.

Soldier A 3. Cover four connections (2) with soap suds.

4. Move hand lever (3) down and check four connections (2) for bubbling action. Tell soldier B when hand lever is down.

Soldier B 5. Check six connections (1) for bubbling action.

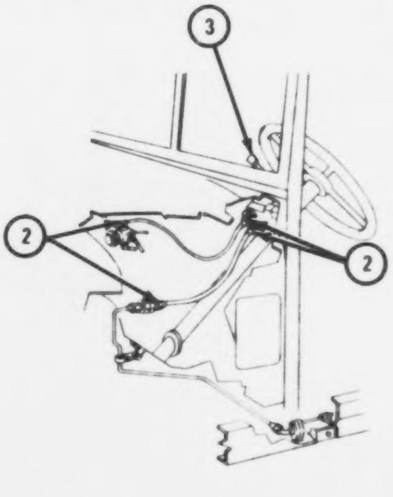
Soldier A 6. Move hand lever (3) up. Using rag, wipe off soap suds from four connections (2).

7. Using wrench, tighten all connections where there was bubbling action.

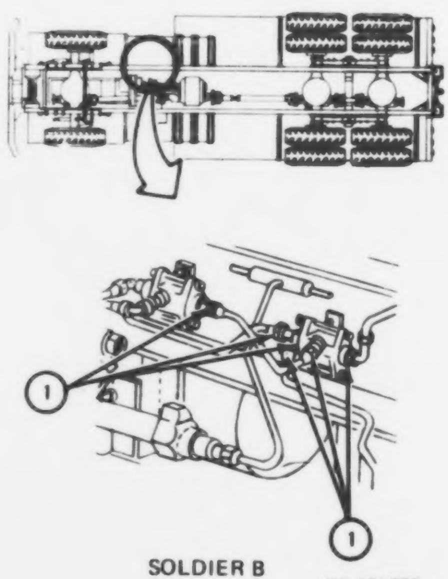
Soldier B 8. Using rag, wipe off soap suds from six connections (1).

9. Using wrench, tighten all connections where there was bubbling action.

GO TO FRAME 2



SOLDIER A



SOLDIER B

FRAME 2

Soldier A 1. Cover connection (1) on engine side of firewall (2) with soap suds.

Soldier B 2. Move hand lever (3) down. Tell soldier A when ready.

Soldier A 3. Check connection (1) for bubbling action. Tell soldier B when finished.

Soldier B 4. Move hand lever (3) up. Stop engine. Refer to TM 9-2320-260-10.

Soldier A 5. Using rag, wipe off soap suds.

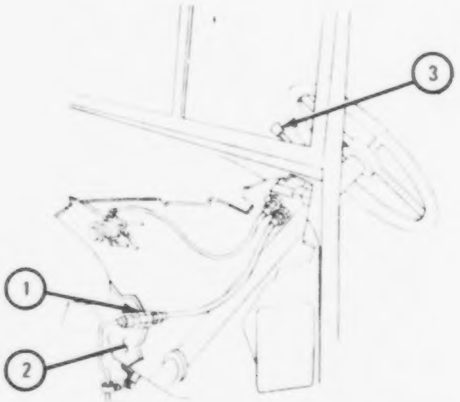
6. Using wrench, tighten connection (1) if there was bubbling action.

NOTE

Follow-on Maintenance Action Required:

Close hood and left side panel. Refer to TM 9-2320-260-10.

END OF TASK



TA 081771

19-18. ELECTRIC BRAKE KIT INSTALLATION.

TOOLS: Hammer
Center punch
Drill motor
13/32-inch drill bit
Open end wrench set, NSN 5120-00-148-7918
6-inch steel scale
Tubing cutter
Wire cutters
Solder iron

SUPPLIES: Solder, MIL-S-627
Waterproof tape
Pencil

PERSONNEL: Two

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedures.

(1) Disconnect battery ground. Refer to TM 9-2320-260-20.

(2) Vent air system pressure. Refer to TM 9-2320-260-20.

(3) Open hood and left side panel. Refer to TM 9-2320-260-10.

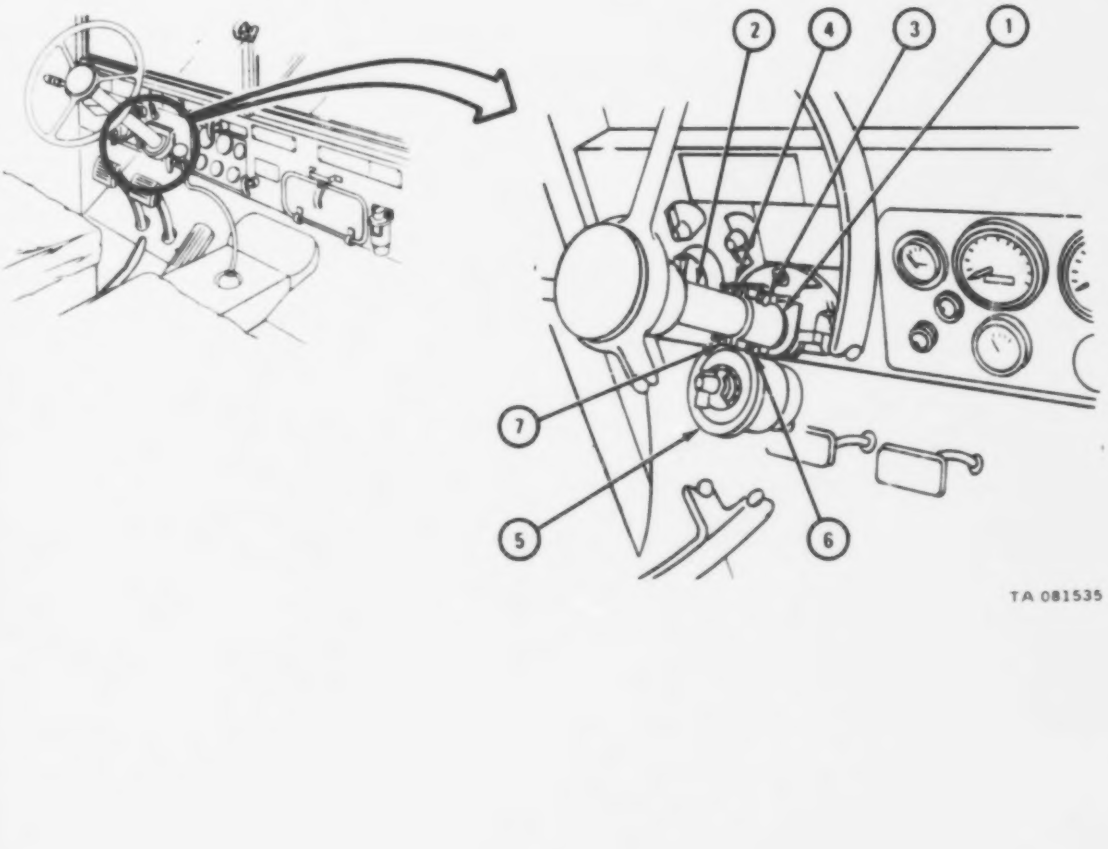
(4) Take off front and intermediate cab tunnels. Refer to TM 9-2320-260-20.

b. Installation.

FRAME 1

1. Put rheostat bracket (1) in place on steering column (2).
2. Using wrenches, screw in and tighten screw (3) and nut (4).
3. Put rheostat (5) into place in rheostat bracket (1).
4. Using wrenches, screw in and tighten screw (6) and nut (7).

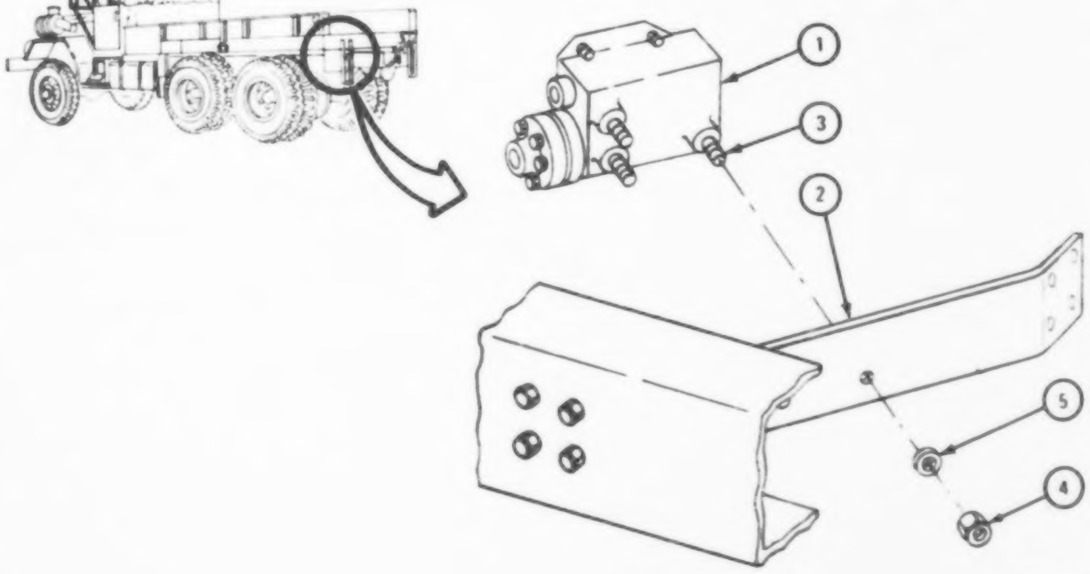
GO TO FRAME 2



FRAME 2

1. Hold controller (1) centered against left pintle brace (2) as shown.
2. Using pencil, mark locations for holes where vee studs (3) touch left pintle brace (2).
3. Using hammer and center punch, punch centers of three hole locations marked in step 2.
4. Using drill motor with 13/32-inch drill bit, drill three holes at center punch marks.
5. Put controller (1) on left pintle brace (2) with three studs (3) in screw holes.
6. Using wrench, screw on and tighten three nuts (4) and washers (5).

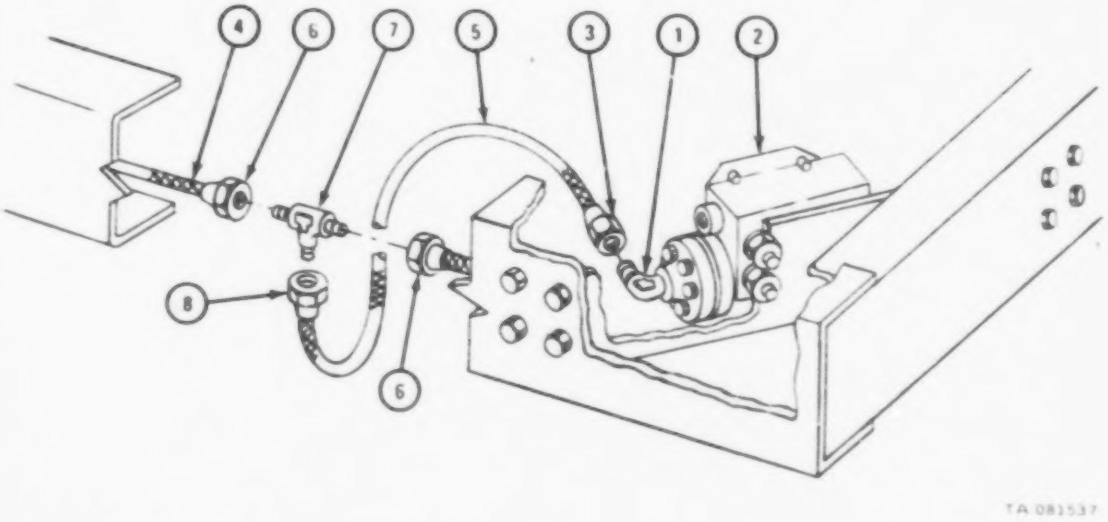
GO TO FRAME 3



FRAME 3

1. Using wrench, screw in and tighten elbow (1) into controller (2).
2. Using wrench, screw in and tighten controller air line fitting (3) into elbow (1).
3. Using pencil, mark service air line (4) at point that can be reached by middle of controller air line (5).
4. Using ruler and pencil, mark service air line (4) at two points 9/16-inch from point marked in step 3.
5. Using tubing cutter, cut service air line (4) at points marked in step 4. Throw away cut-out section of service air line.
6. Put fitting (6) on each of two cut ends of service air line (4). Refer to TM 9-2320-260-20.
7. Using wrenches, screw in and tighten tee fitting (7) into two fittings (6).
8. Using wrench, screw on and tighten controller air line fitting (8) to tee fitting (7).

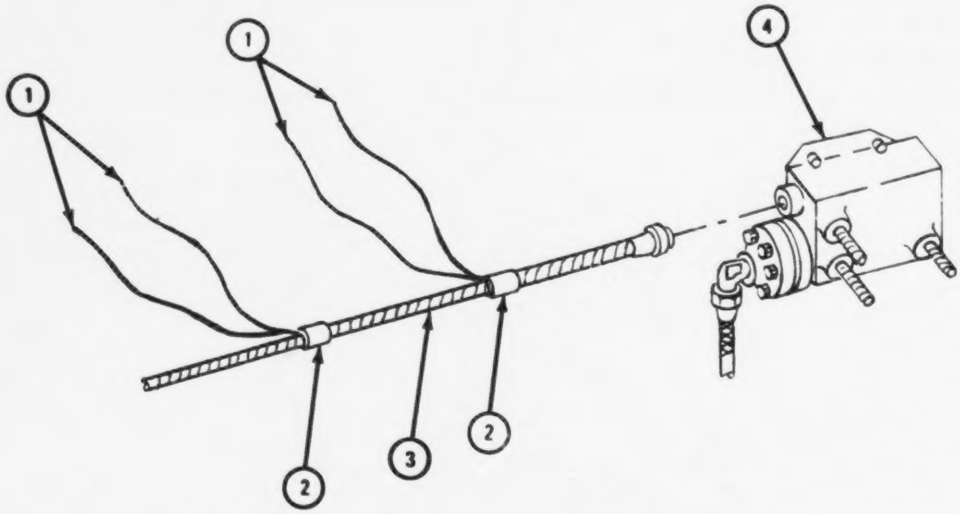
GO TO FRAME 4



FRAME 4

1. For all trucks except trucks M818 and M819, using wire cutters, cut four shortest leads (1) at molded splice (2). Using waterproof tape, wrap cut ends of four leads on rheostat-to-controller cable (3).
2. Using wrench, screw in and tighten rheostat-to-controller cable (3) to controller (4).

GO TO FRAME 5

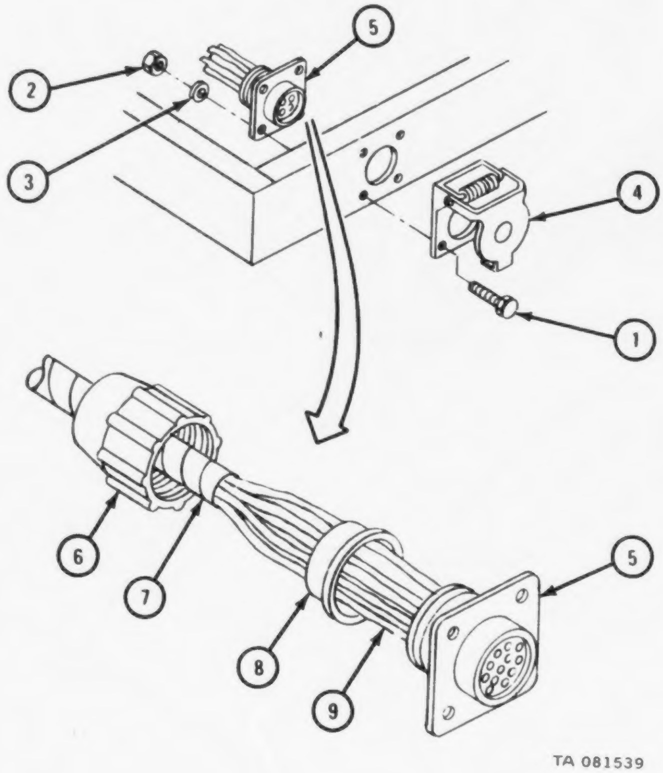


TA 081538

FRAME 5

1. Using wrenches, unscrew and take off four screws (1), nuts (2), and washers (3). Take off receptacle cover (4).
2. Take out receptacle assembly (5).
3. Unscrew grommet retaining nut (6) and slide it back along cable (7).
4. Pull grommet (8) away from receptacle assembly (5). Be careful not to pull wire leads (9) out of receptacle assembly.

GO TO FRAME 6



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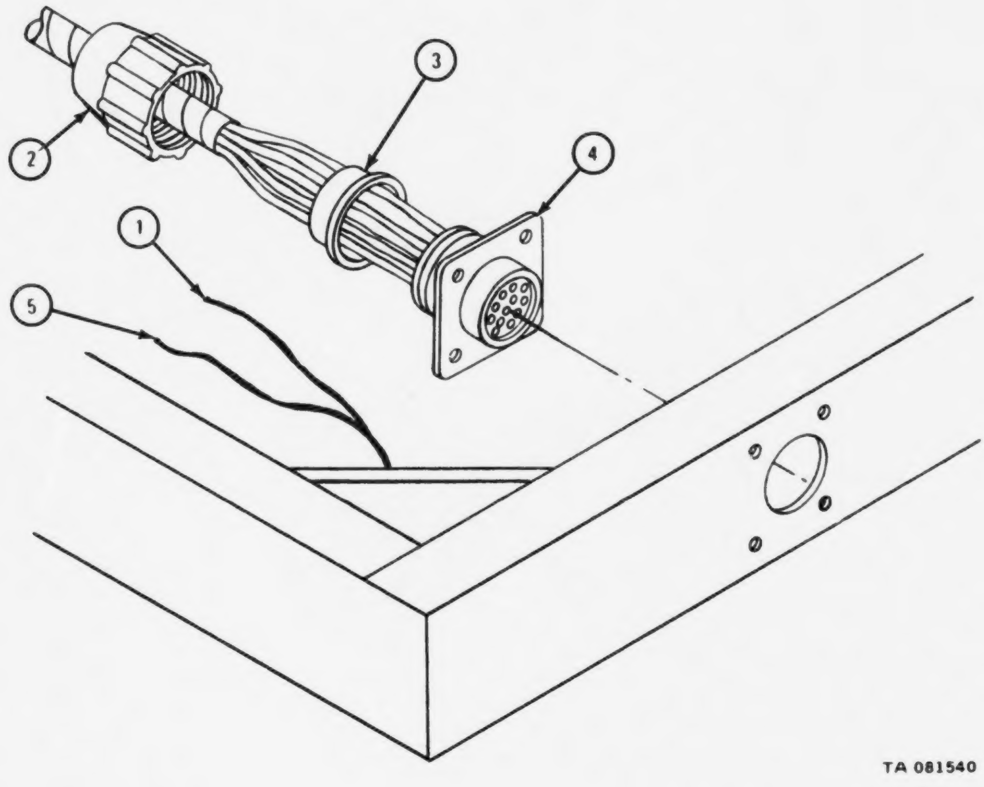
FRAME 6

1. Pass lead (1) with wire number 53B through grommet retaining nut (2) and empty hole in grommet (3). Push lead into terminal N in receptacle assembly (4).
2. Using solder iron and solder, solder lead (1) with wire number 53B to terminal N.
3. Pass lead (5) with wire number 53C through grommet retaining nut (2) and empty hole in grommet (3). Push lead into terminal M in receptacle assembly (4).
4. Using solder iron and solder, solder lead (5) with wire number 53C to terminal M.

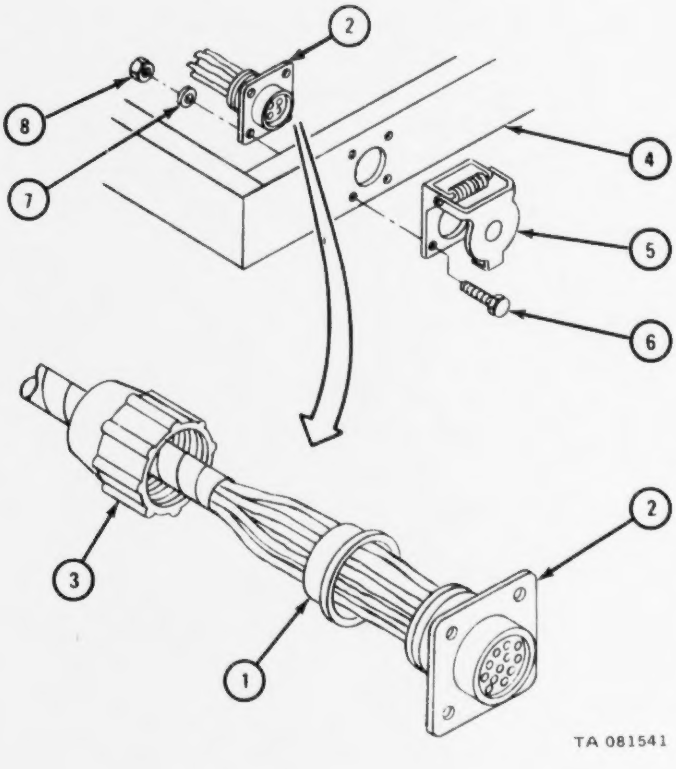
GO TO FRAME 7



FRAME 7

1. Push grommet (1) into receptacle assembly (2) until it is seated.
2. Screw grommet retaining nut (3) into receptacle assembly (2).
3. Put receptacle assembly (2) into place on rear frame member (4) and aline screw holes.
4. Put receptacle cover (5) into place on rear frame member (4) and aline screw holes.
5. Using wrenches, screw in and tighten four screws (6), washers (7), and nuts (8).

GO TO FRAME 8



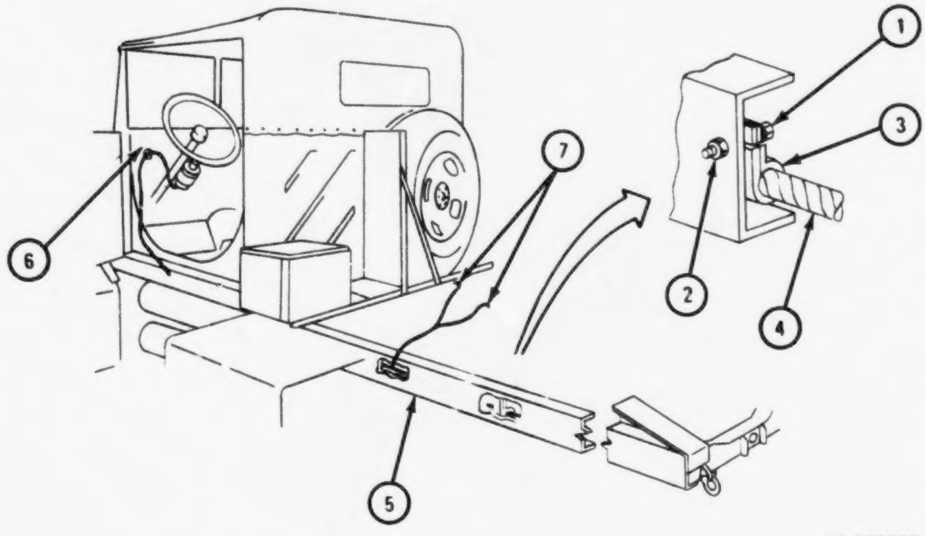
FRAME 8

1. Using wrenches, unscrew and take out screw (1) and nut (2).
2. Spread open ends of electrical harness clamp (3).
3. Lay out rheostat-to-controller cable (4) along cable on inside of left frame member (5) and put rheostat-to-controller cable into electrical harness clamp (3).
4. Close ends of electrical harness clamp (3) and put it in place on inside of left frame member (5). Aline screw holes.
5. Using wrenches, screw in and tighten screw (1) and nut (2).
6. Do steps 1 through 5 again along length of left frame member (5) and up fire-wall (6) as shown.

NOTE

Two leads (7) are only used on trucks M818 and M819.
Do not clamp these two leads along left frame member (5).

GO TO FRAME 9

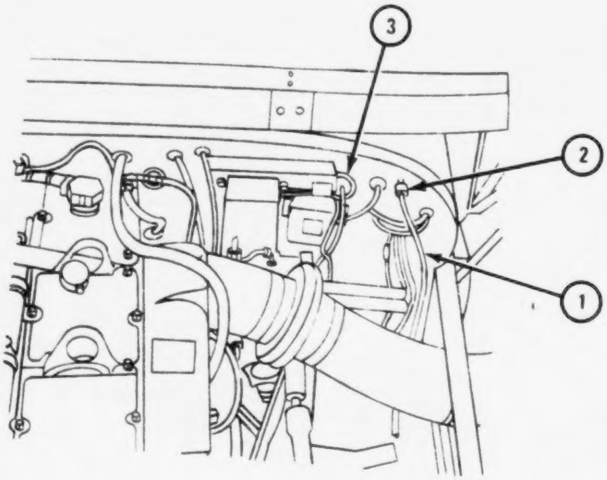


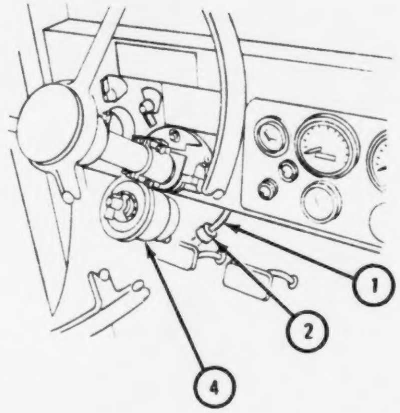
TA 081542

FRAME 9

1. Push controller-to-rheostat cable (1) and plug (2) through electrical harness grommet (3).
2. Working inside cab, gently pull controller-to-rheostat cable (1) until it reaches rheostat (4).
3. Plug controller-to-rheostat plug (2) into rheostat (4).

FOR TRUCKS M818 OR M819, GO TO FRAME 10.
FOR ALL OTHER TRUCKS, GO TO FRAME 13



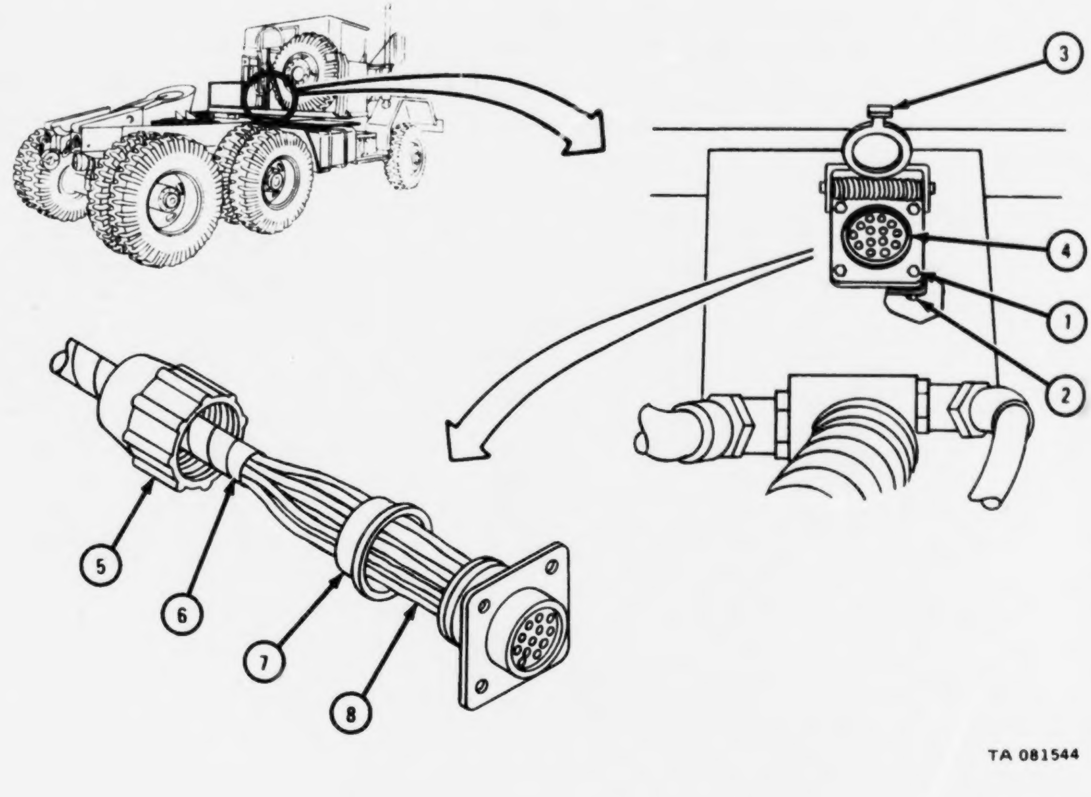


TA 081543

FRAME 10

1. Using wrenches, unscrew and take out four screws (1) and nuts (2). Take off receptacle cover (3).
2. Take out receptacle assembly (4).
3. Unscrew grommet retaining nut (5) and slide it back along cable (6).
4. Pull grommet (7) away from receptacle assembly (4). Be careful not to pull wire leads (8) out of receptacle assembly.

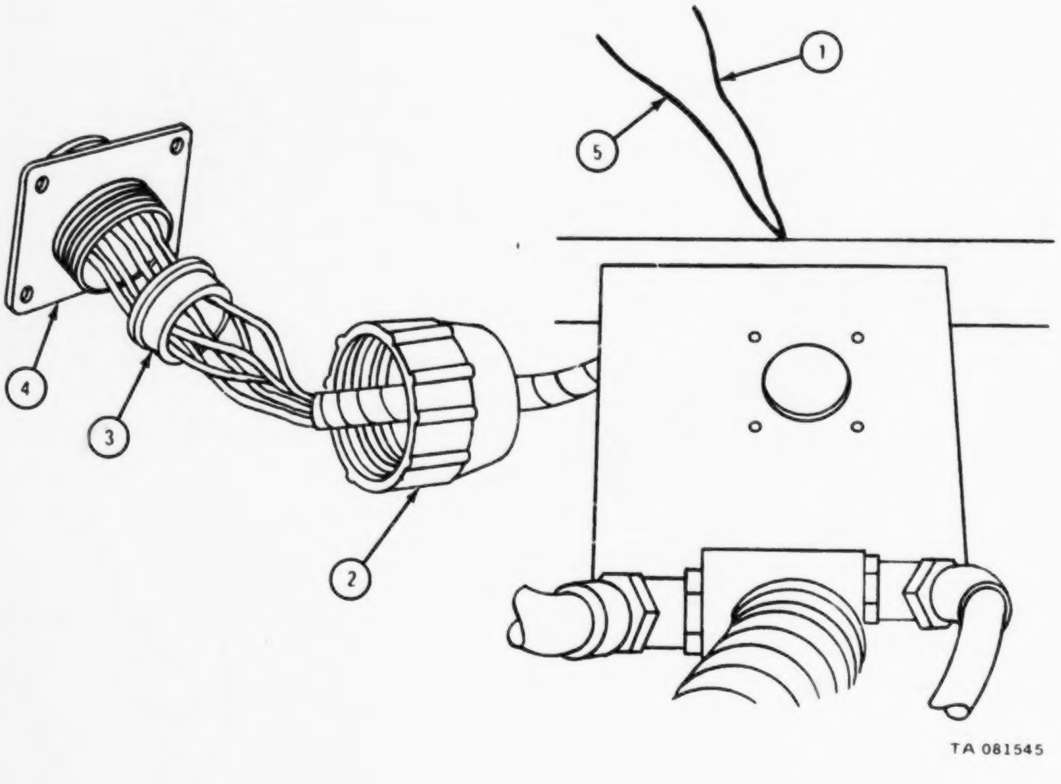
GO TO FRAME 11



FRAME 11

1. Pass lead (1) with wire number 53B through grommet retaining nut (2) and empty hole in grommet (3). Push lead into terminal N in receptacle assembly (4).
2. Using solder iron and solder, solder lead (1) with wire number 53B to terminal N.
3. Pass lead (5) with wire number 53C through grommet retaining nut (2) and empty hole in grommet (3). Push lead into terminal M in receptacle assembly (4).
4. Using solder iron and solder, solder lead (5) with wire number 53C to terminal M.

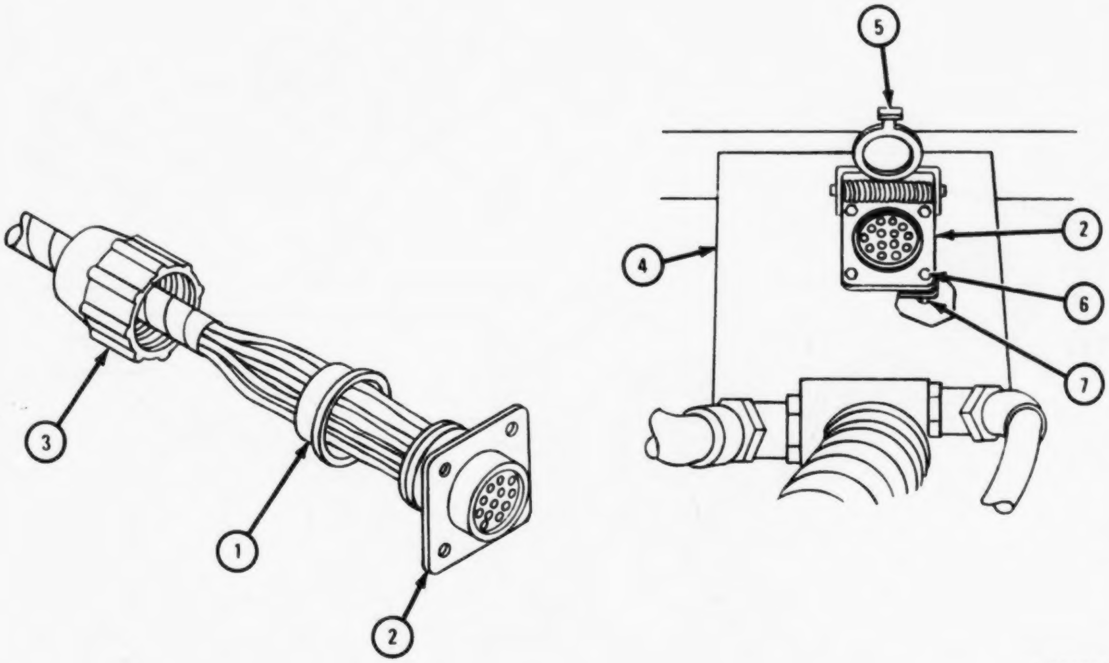
GO TO FRAME 12



FRAME 12

1. Push grommet (1) into receptacle assembly (2) until it is seated.
2. Screw grommet retaining nut (3) into receptacle assembly (2).
3. Put receptacle assembly (2) in place under plate (4) as shown and aline screw holes.
4. Put receptacle cover (5) in place as shown and aline screw holes.
5. Using wrenches, screw in and tighten four screws (6) and nuts (7).

GO TO FRAME 13

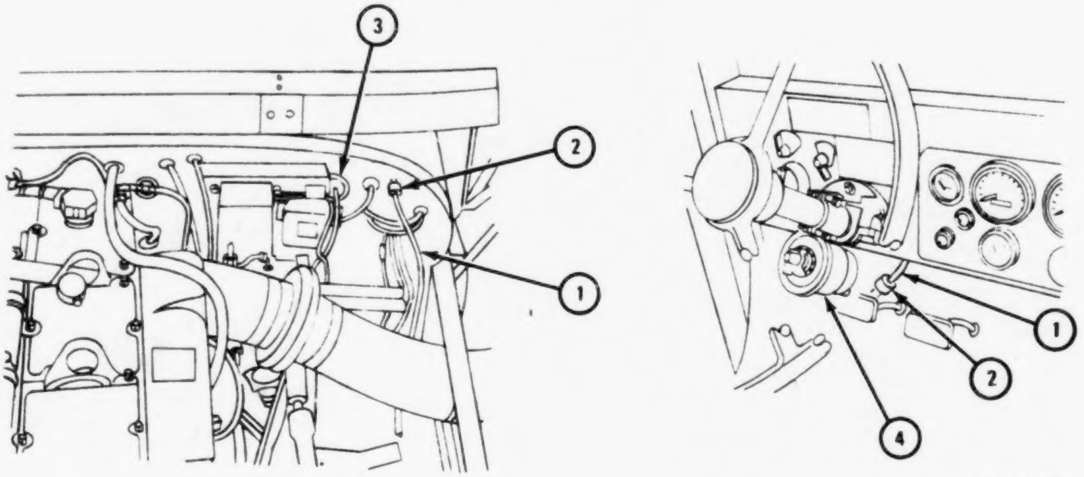


TA 081546

FRAME 13

1. Push battery-to-rheostat cable (1) and plug (2) through electrical harness grommet (3).
2. Working inside cab, gently pull battery-to-rheostat cable (1) until it reaches rheostat (4).
3. Plug battery-to-rheostat plug (2) into rheostat (4).

GO TO FRAME 14

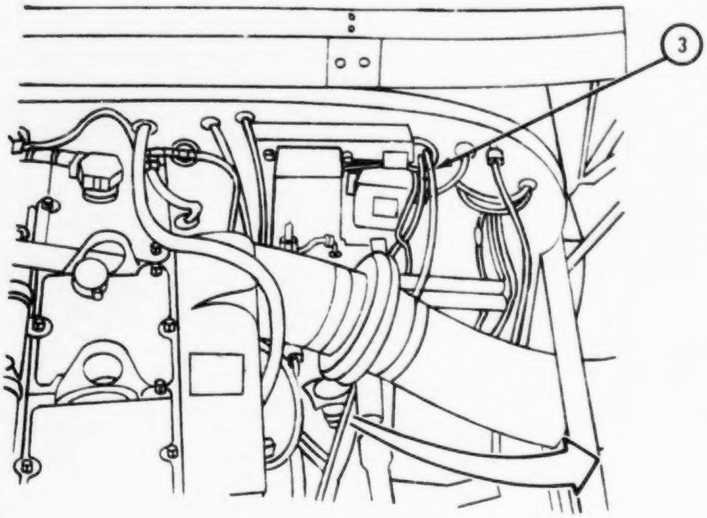


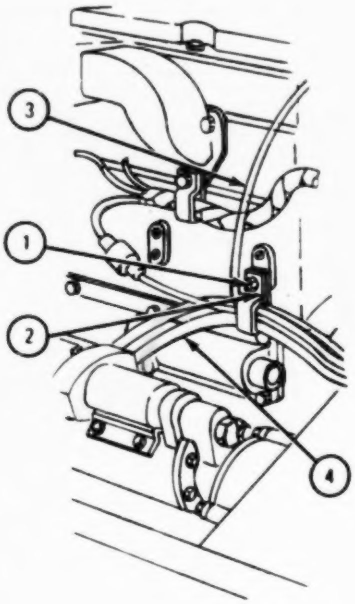
TA 081543

FRAME 14

1. Working in engine compartment using wrench, unscrew and take out screw (1). Spread open clamp (2).
2. Put battery-to-rheostat cable (3) through clamp (2) and route it next to battery cable (4) toward top of transmission.
3. Close clamp (2). Using wrench, screw in and tighten screw (1).

GO TO FRAME 15



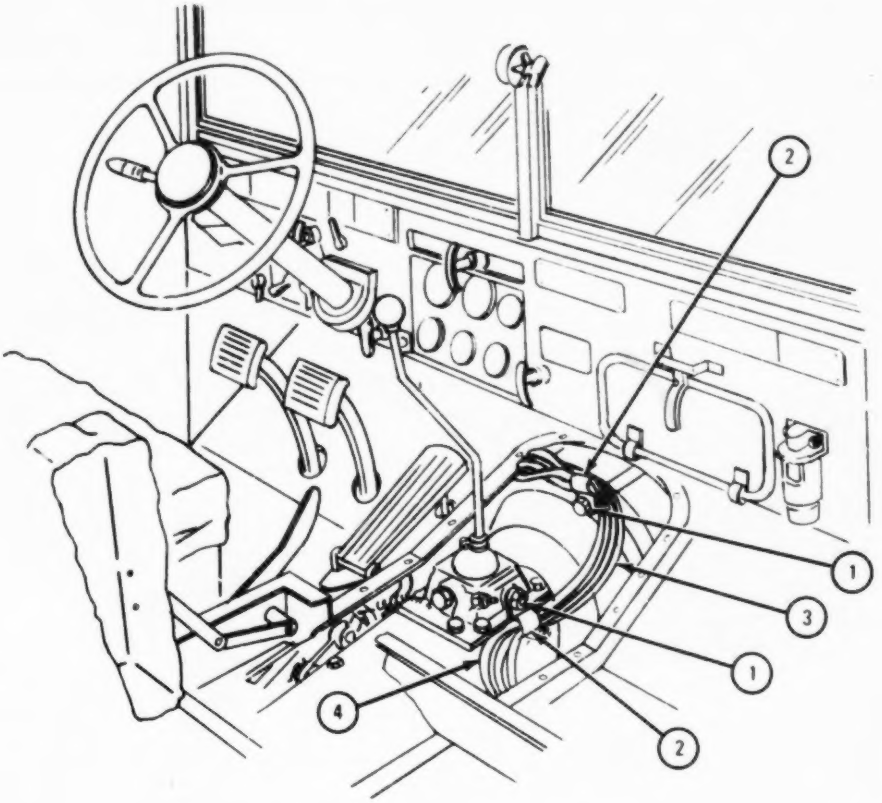


TA 081548

FRAME 15

1. Using wrench, unscrew and take out two screws (1) and spread open two clamps (2).
2. Route battery-to-rheostat cable (3) next to battery cable (4) and through two clamps (2) toward battery box as shown.
3. Close two clamps (2). Using wrench, screw in and tighten two screws (1).

GO TO FRAME 16

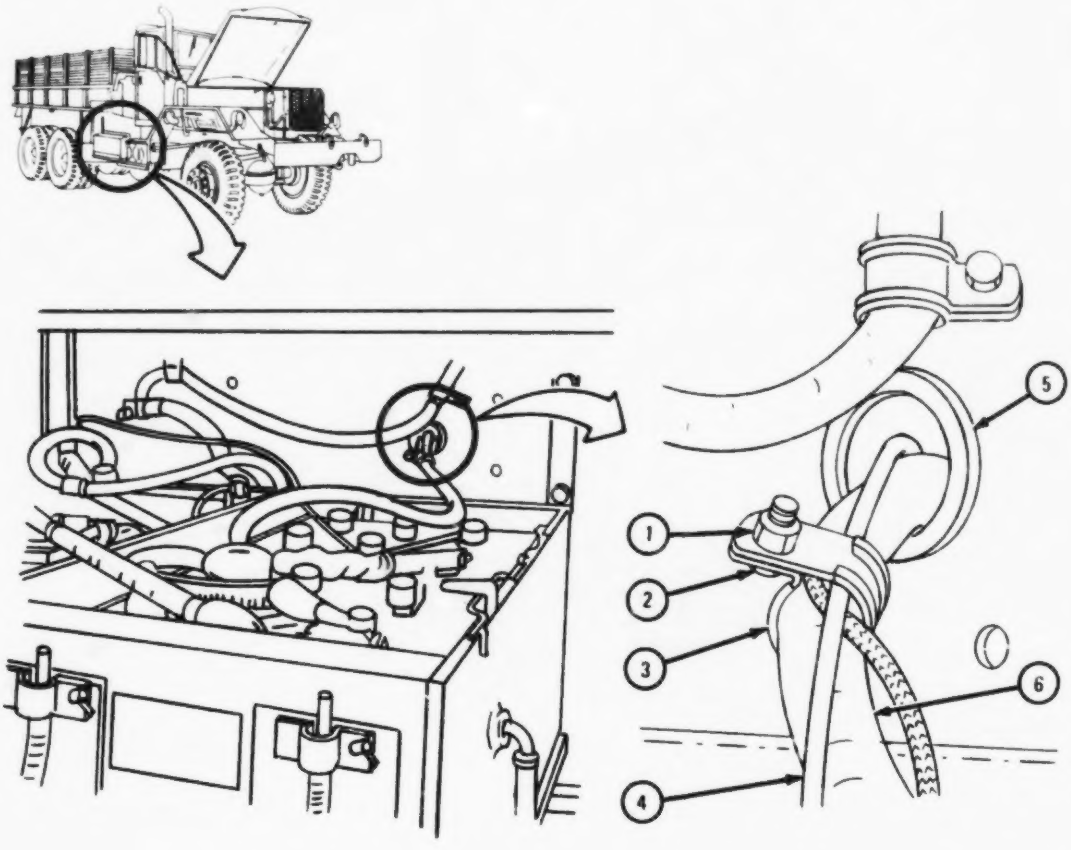


TA 081549

FRAME 16

1. Using wrenches, unscrew and take off nut (1) and take out screw (2). Spread open clamp (3).
2. Pull battery-to-rheostat cable (4) through grommet (5) and route it next to battery cable (6) and through clamp (3).
3. Close clamp (3) and put screw (2) in place.
4. Using wrenches, screw on and tighten nut (1).

GO TO FRAME 17



TA081997

FRAME 17

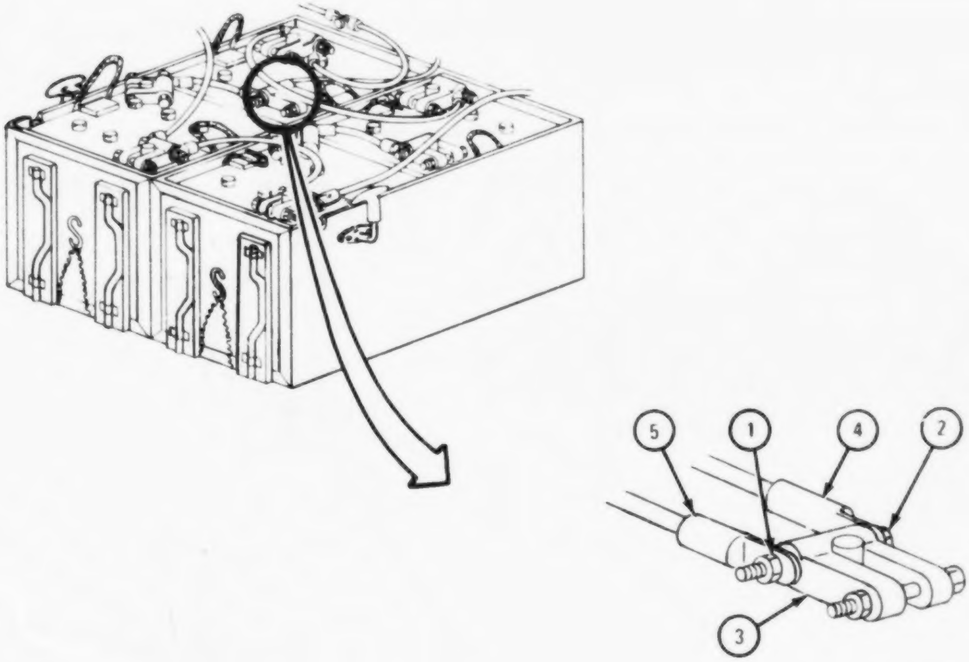
1. Using wrenches, unscrew and take off nut (1). Take screw (2) out of battery terminal clamp (3).
2. Put screw (2) through battery-to-rheostat cable terminal (4). Put screw back in battery terminal clamp (3).
3. Put battery cable terminal (5) on screw (2). Using wrenches, screw on and tighten nut (1).

NOTE

Follow-on Maintenance Action Required:

1. Close hood and left side panel. Refer to TM 9-2320-260-10.
2. Put on front and intermediate cab tunnels. Refer to TM 9-2320-260-20.
3. Reconnect battery ground. Refer to TM 9-2320-260-20.

END OF TASK



TA 081998

19-19. ELECTRIC BRAKE CONTROLLER REMOVAL, REPAIR, AND REPLACEMENT.

TOOLS: Open end wrench set, NSN 5120-00-148-7918
Eye shields

SUPPLIES: Solvent, dry cleaning, type II (SD-2), Fed. Spec P-D-680
Insulating compound
Cover gasket
Diaphragm
Rags
Compressed air source, 30 psi max

PERSONNEL: One

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

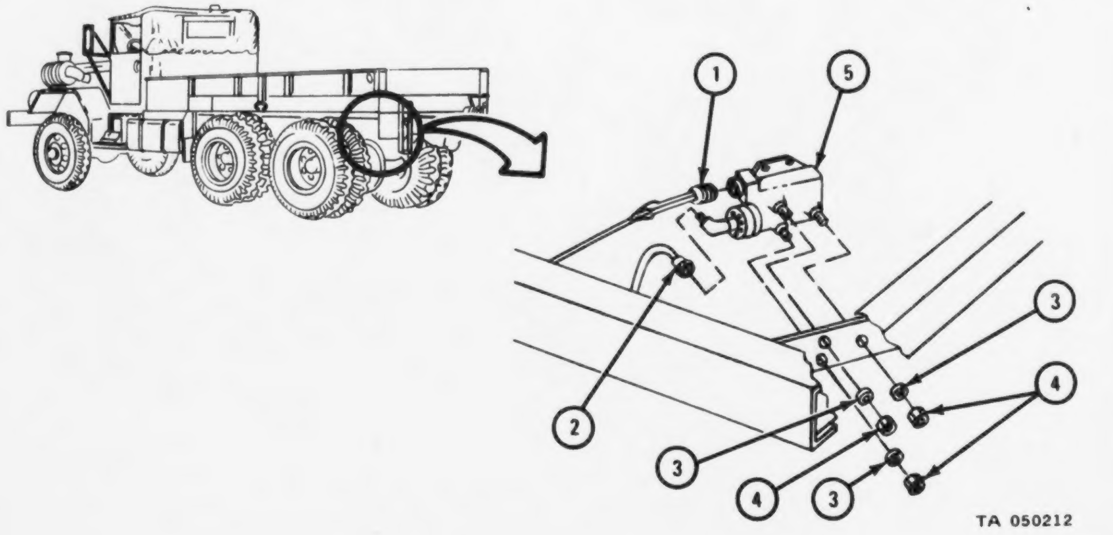
a. Preliminary Procedure. Vent air system pressure. Refer to TM 9-2320-260-20.

b. Removal.

FRAME 1

1. Working under truck, unscrew and take off controller cable (1).
2. Using wrench, unscrew and take off air line fitting (2).
3. Using wrench, unscrew and take off three washers (3) and nuts (4). Take out electric brake controller (5).

END OF TASK



c. Disassembly.

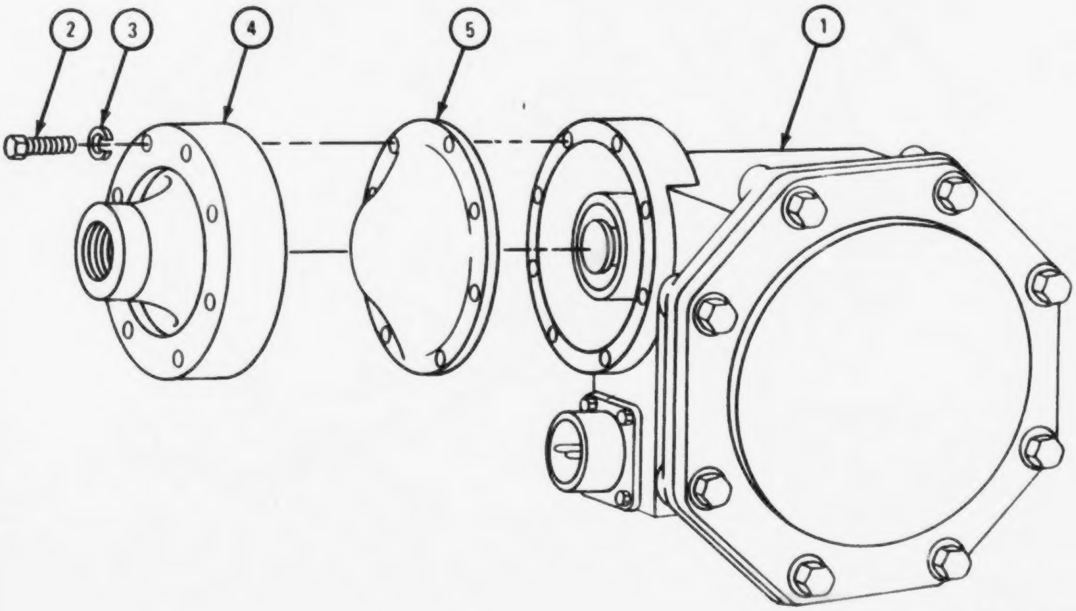
FRAME 1

WARNING

Dry cleaning solvent is flammable. Do not use near an open flame. Keep a fire extinguisher nearby when solvent is used. Use only in well-ventilated places. Failure to do this may result in injury to personnel and damage to equipment.

1. Using solvent, clean outside of controller (1). Dry with clean rags.
2. Using wrench, unscrew and take out eight screws (2) and lockwashers (3). Take off diaphragm cover (4) and diaphragm (5).

GO TO FRAME 2

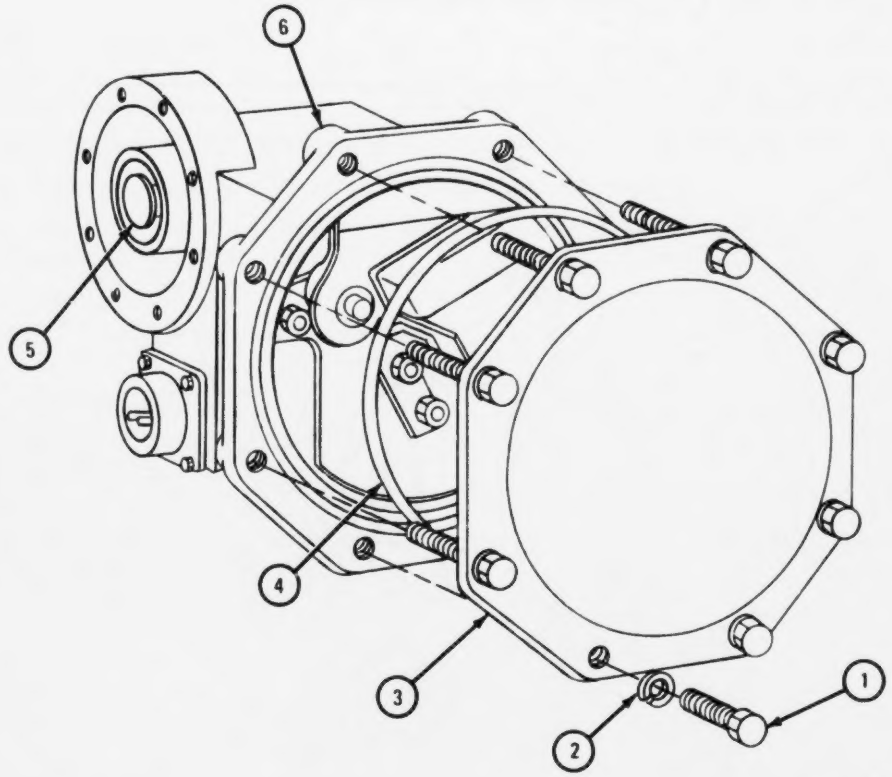


TA 083678

FRAME 2

1. Using wrench, unscrew and take out eight screws (1) and lockwashers (2).
2. Take off cover (3) and gasket (4). Throw away gasket.
3. Push in shaft head (5) three or four times. If shaft head does not come back to full out position with force, put in a new controller (6). Refer to para 19-19f.

GO TO FRAME 3

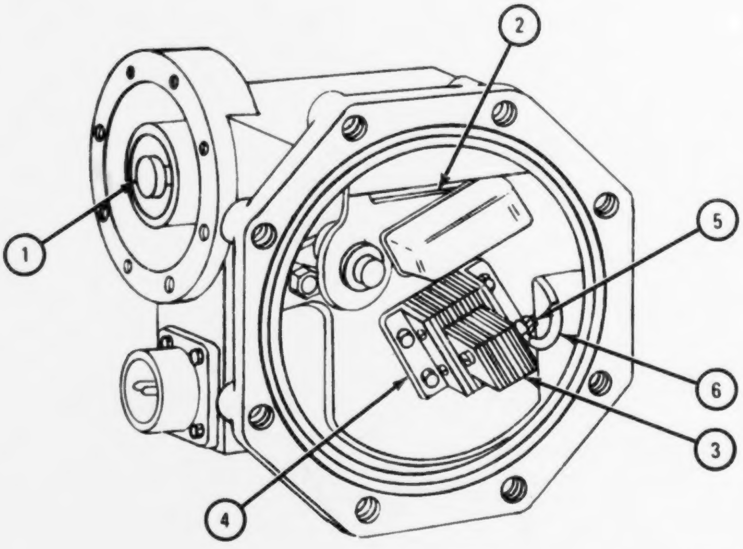


TA 083679

FRAME 3

1. Push shaft head (1) in and check that contact arm (2) touches contact leaves (3). If contact arm does not touch contact leaves because they are damaged, get a new stack and brush resistor assembly (4).
2. Using wrench, unscrew and take off nut (5). Take off connecting cable (6).

GO TO FRAME 4



TA 083680

FRAME 4

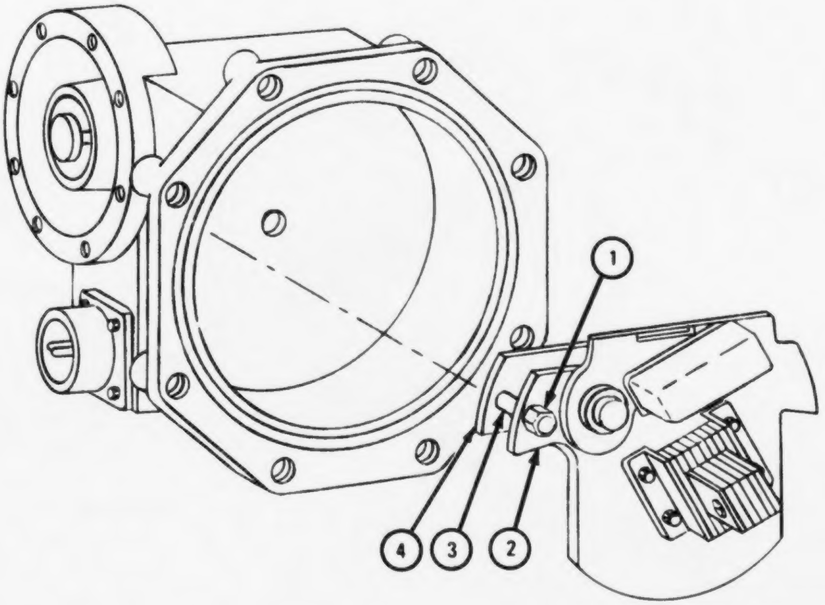
1. Using wrench, unscrew and take off two nuts (1).
2. Take out mounting panel (2).
3. Take out two spacers (3) and mounting panel (4).

WARNING

Eye shields must be worn when using compressed air. Eye injury can occur if eye shields are not used.

4. Using compressed air, blow dust and flakes off all parts.

END OF TASK



TA 083681

d. Inspection and Repair.

(1) Check that screw hole threads are not damaged. Retap screw holes needed.

(2) Check that there are no loose or missing studs, screws, washers or plugs. Get new parts for all missing parts.

(3) Check that controller body and covers have no cracks or damage. If controller body or covers are damaged, get a new controller.

(4) Check that cable attaching rivet on contact arm is not loose or damaged. Rivet again if needed.

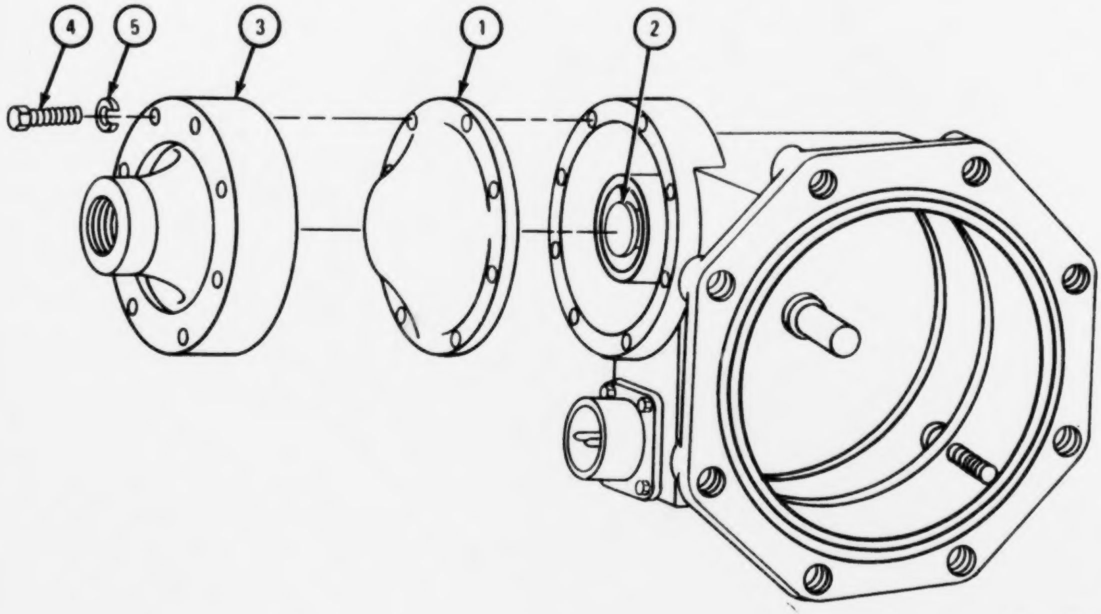
(5) Check that diaphragm has no brittleness or cracked fabric. If diaphragm is damaged, get a new one.

e. Assembly.

FRAME 1

1. Wipe off diaphragm (1) and shaft head (2). Put thin coat of insulating compound on diaphragm where it touches shaft head.
2. Put diaphragm (1) and diaphragm cover (3) in place and using wrench, screw in and tighten eight screws (4) and lockwashers (5).

GO TO FRAME 2

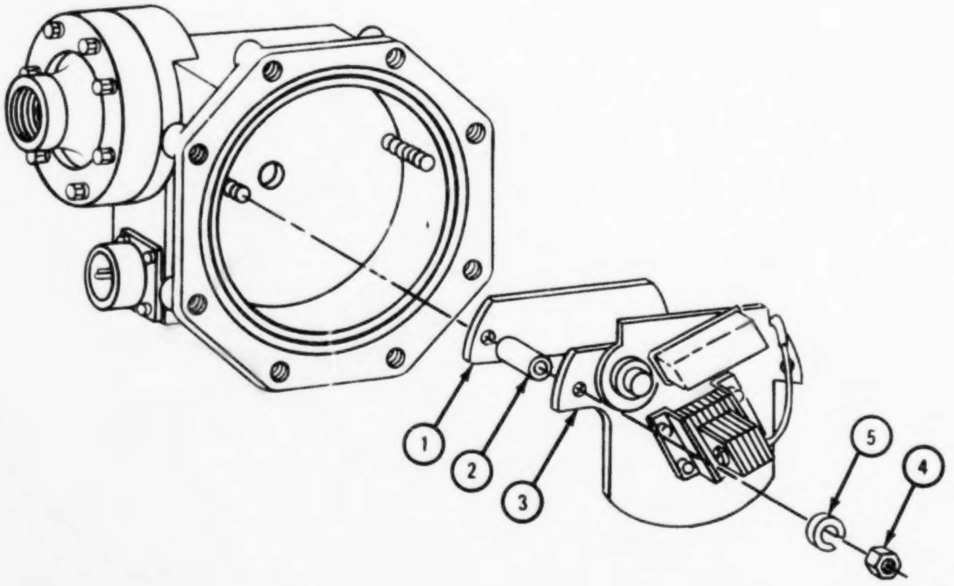


TA 083682

FRAME 2

1. Put in mounting panel (1) and two spacers (2).
2. Put in mounting panel (3).
3. Using wrench, screw on and tighten two nuts (4) and lockwashers (5).

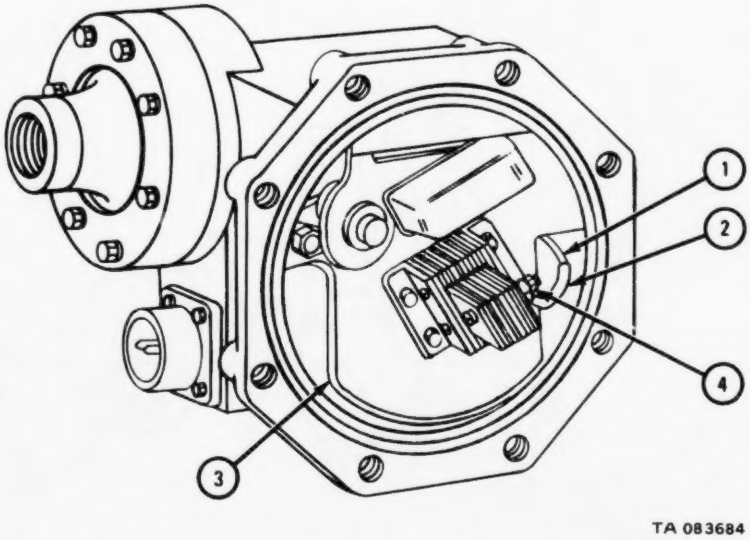
GO TO FRAME 3



FRAME 3

1. Put connecting cable (1) in place. Make sure insulating sleeve (2) sits up against mounting panel (3).
2. Using wrench, screw on and tighten nut (4).

GO TO FRAME 4

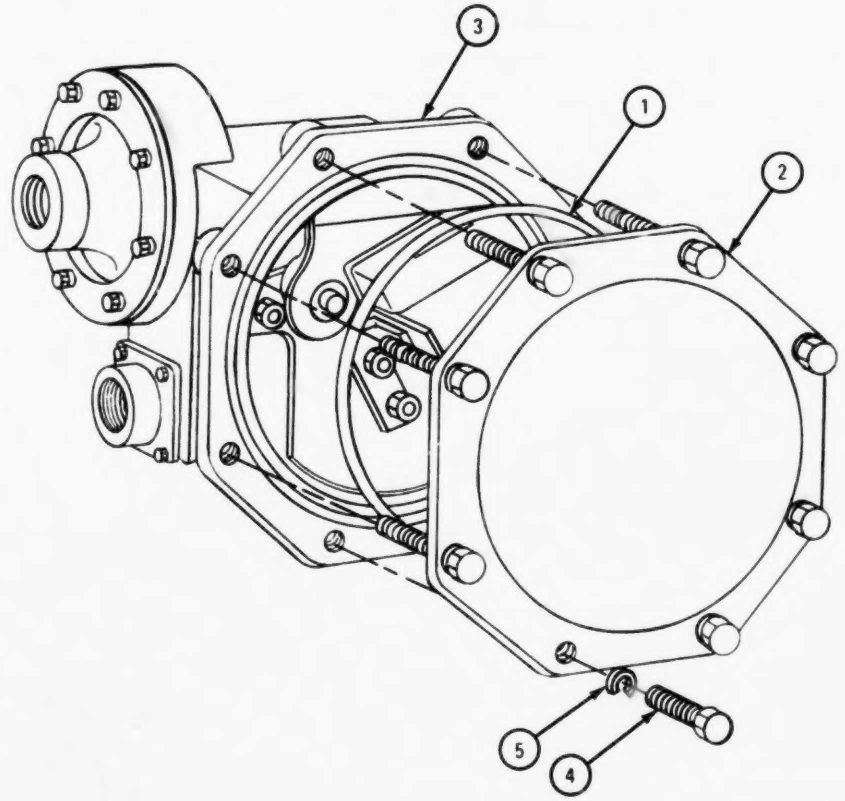


TA 083684

FRAME 4

1. Put gasket (1) and cover (2) on controller (3), alining holes.
2. Using wrench, screw in and tighten eight screws (4) and lockwashers (5).

END OF TASK



TA 083749

f. Replacement.

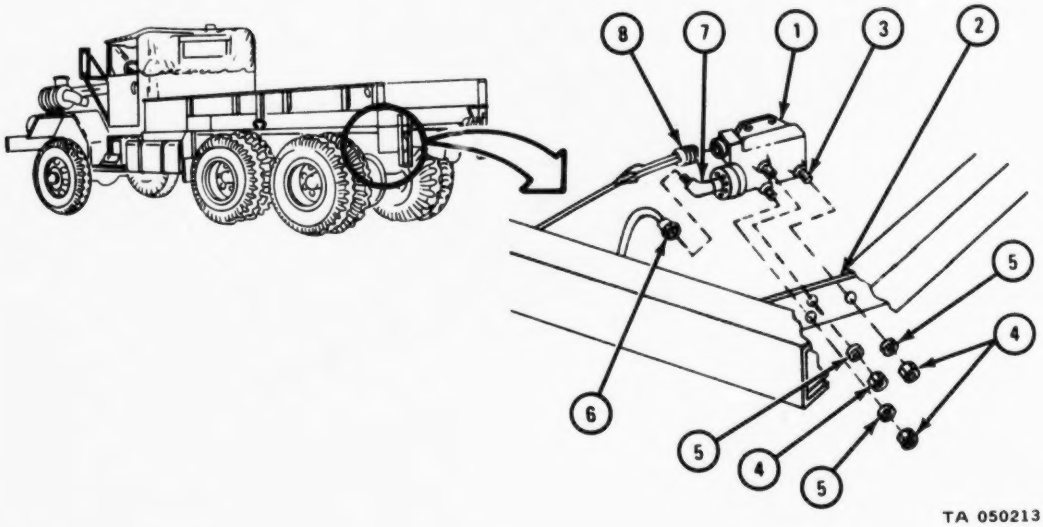
FRAME 1

1. Put electric brake controller (1) on pintle brace (2) with three studs (3) in screw holes as shown.
2. Using wrench, screw on and tighten three nuts (4) and washers (5).
3. Using wrench, screw on and tighten air line nut (6) to elbow (7).
4. Screw in and tighten controller cable (8) to controller (1).

NOTE

Follow-on Maintenance Action Required:
Start engine and run until buzzer goes off. Stop engine.
Refer to TM 9-2320-260-10.

END OF TASK



TA 050213

19-20. A-FRAME KIT INSTALLATION (TRUCKS WITH WINCH M813, M813A1, M814, AND M818).

TOOLS:
- Open end wrench set, NSN 5120-00-148-7918
- Adjustable wrench
- 15/16-inch wrench
- Drill motor
- 1/2-inch drill bit
- Scribe
- Pliers

SUPPLIES: A-frame kit, p/n 8390117

PERSONNEL: Three

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

a. Preliminary Procedures.

(1) For cargo trucks, remove tailgate. Refer to TM 9-2320-260-10.

(2) Remove cab cover. Refer to TM 9-2320-260-10.

(3) Lay windshield down on cowl and fasten it with safety latch. Refer to TM 9-2320-260-10.

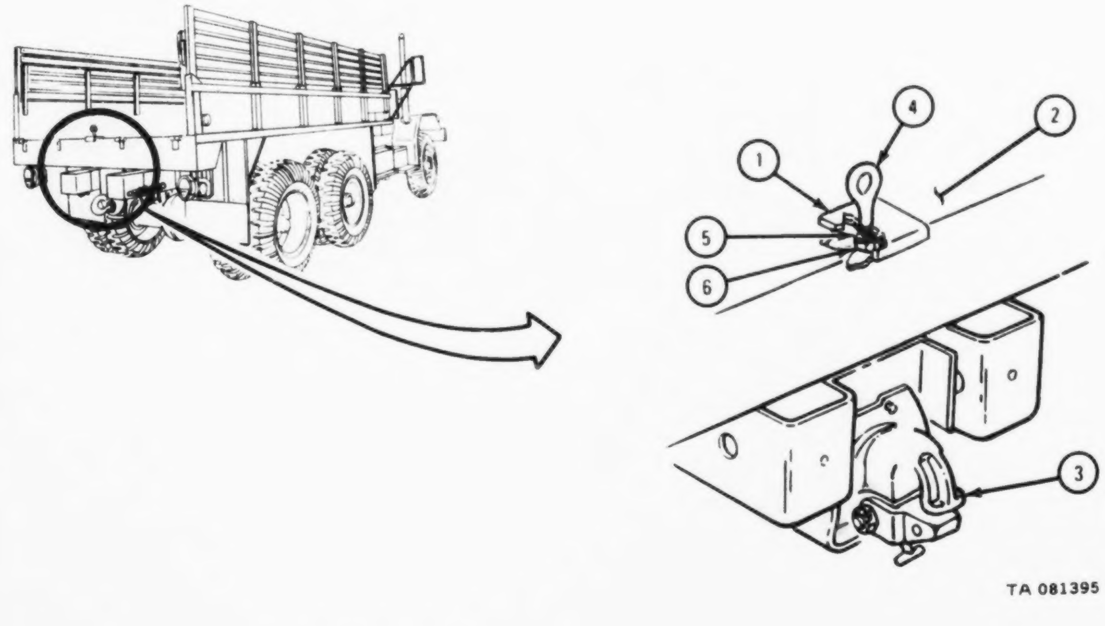
b. Installation.

(1) Anchor plate (trucks M813, M813A1, and M814).

FRAME 1

1. Center anchor plate (1) on cargo body bed (2) above pintle (3).
2. Using scribe, mark cargo body bed (2) through hole in anchor plate (1). Take off anchor plate.
3. Using drill motor and 1/2-inch drill bit, drill hole on scribe mark.
4. Put anchor plate (1) and eyebolt (4) in place.
5. Using wrench and adjustable wrench, screw on and tighten washer (5) and nut (6).

END OF TASK

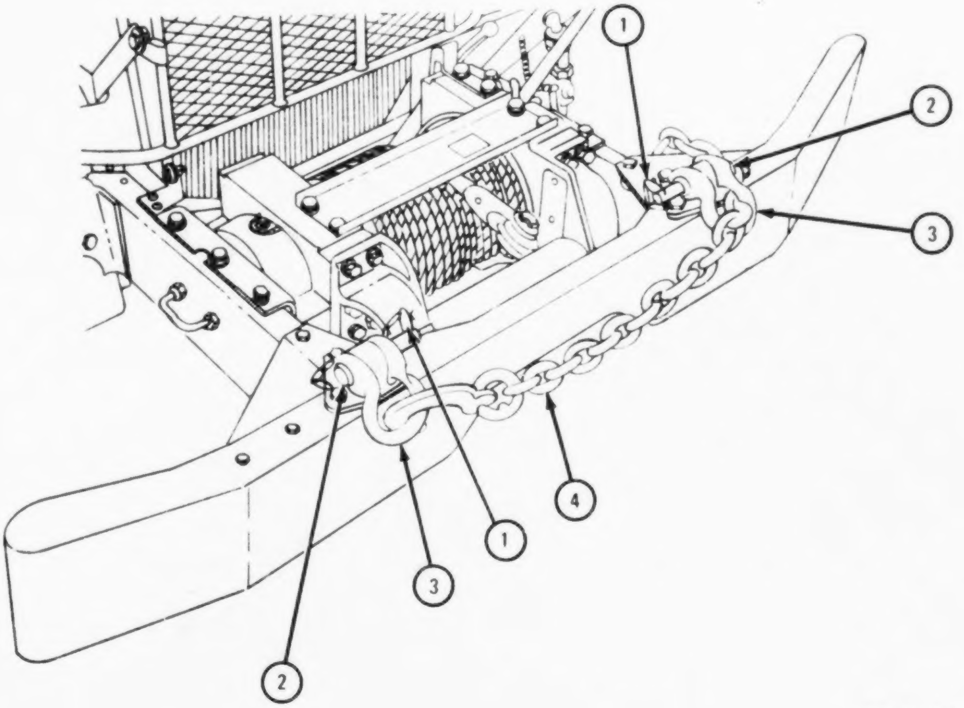


(2) A-frame legs.

FRAME 1

1. Unhook and take out two safety pins (1).
2. Take out two retaining pins (2).
3. Take off two shackles (3).
4. Take two shackles (3) off chain and hook (4) and put chain and hook down on ground.

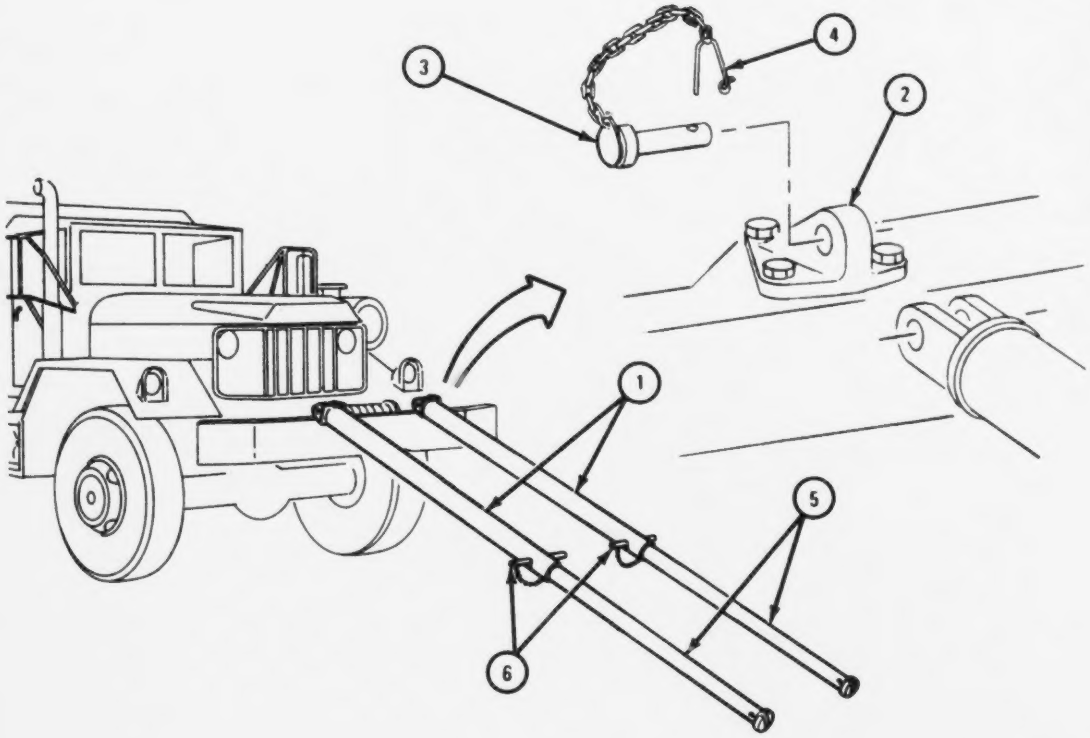
GO TO FRAME 2



FRAME 2

1. Put two A-frame legs (1) on two shackle brackets (2) in place.
2. Put in two retaining pins (3).
3. Put in two safety pins (4).
4. Put two A-frame extensions (5) in place in A-frame legs (1).
5. Put in two pins (6).

END OF TASK



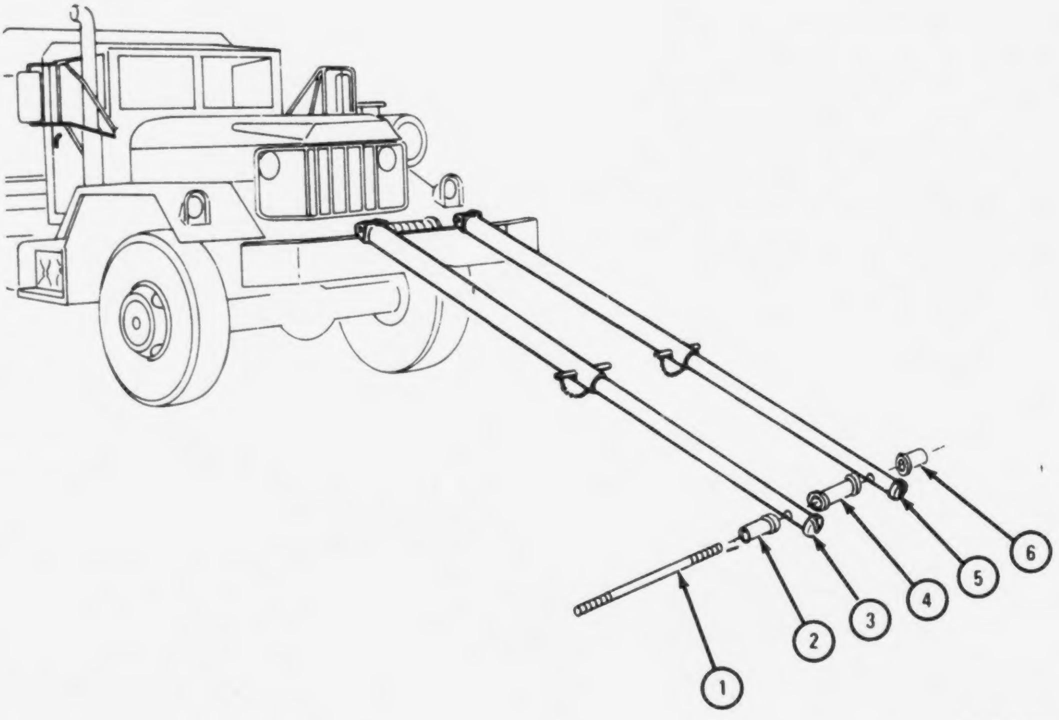
TA 081397

(3) A-frame spreader tube, harness, and cable.

FRAME 1

1. Put spreader stud (1) through outer spacer (2), extension (3), spreader tube (4), extension (5), and outer spacer (6).

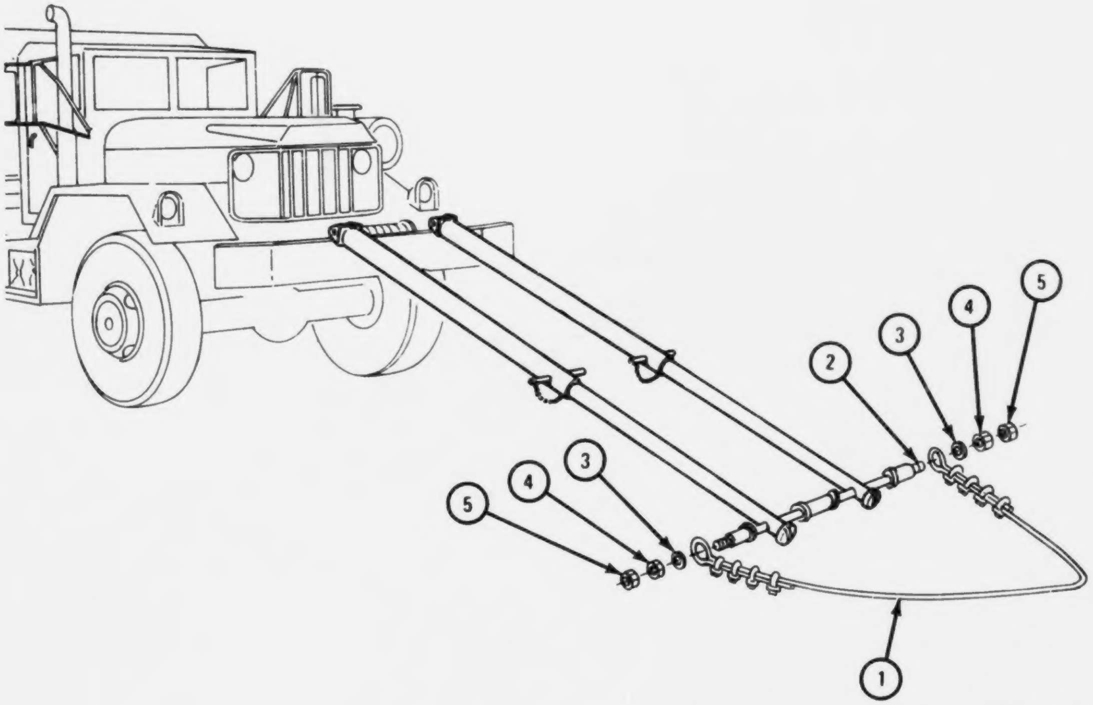
GO TO FRAME 2



FRAME 2

1. Put each end of cable harness (1) on each side of spreader stud (2).
2. Using wrenches, screw on and tighten two washers (3) and nuts (4 and 5).

GO TO FRAME 3

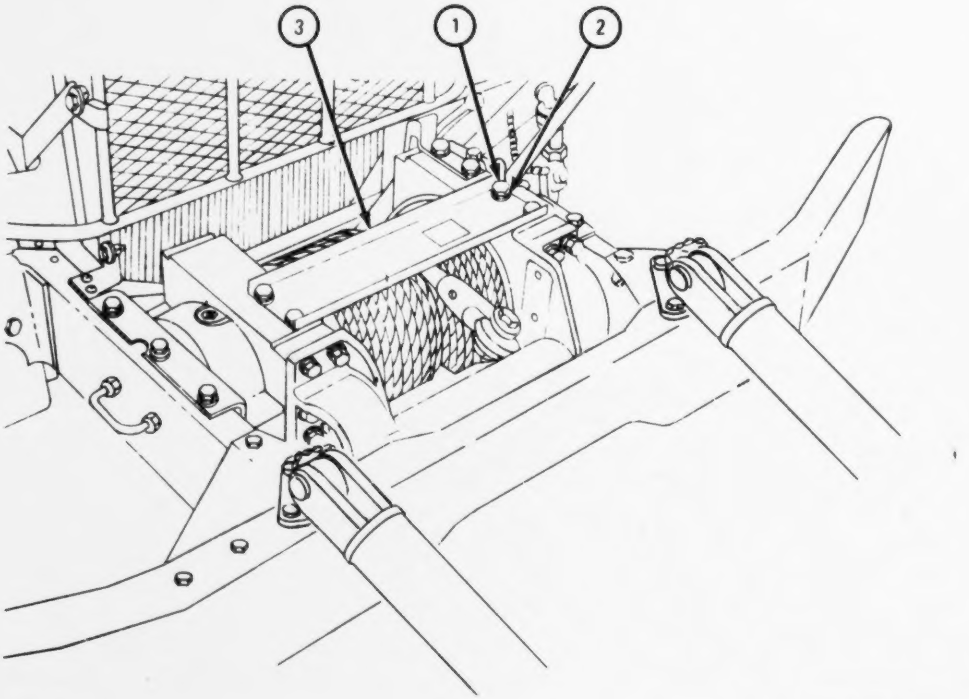


TA 081399

FRAME 3

1. Using wrench, unscrew and take out four bolts (1) and four lockwashers (2).
2. Take off top channel (3).

GO TO FRAME 4

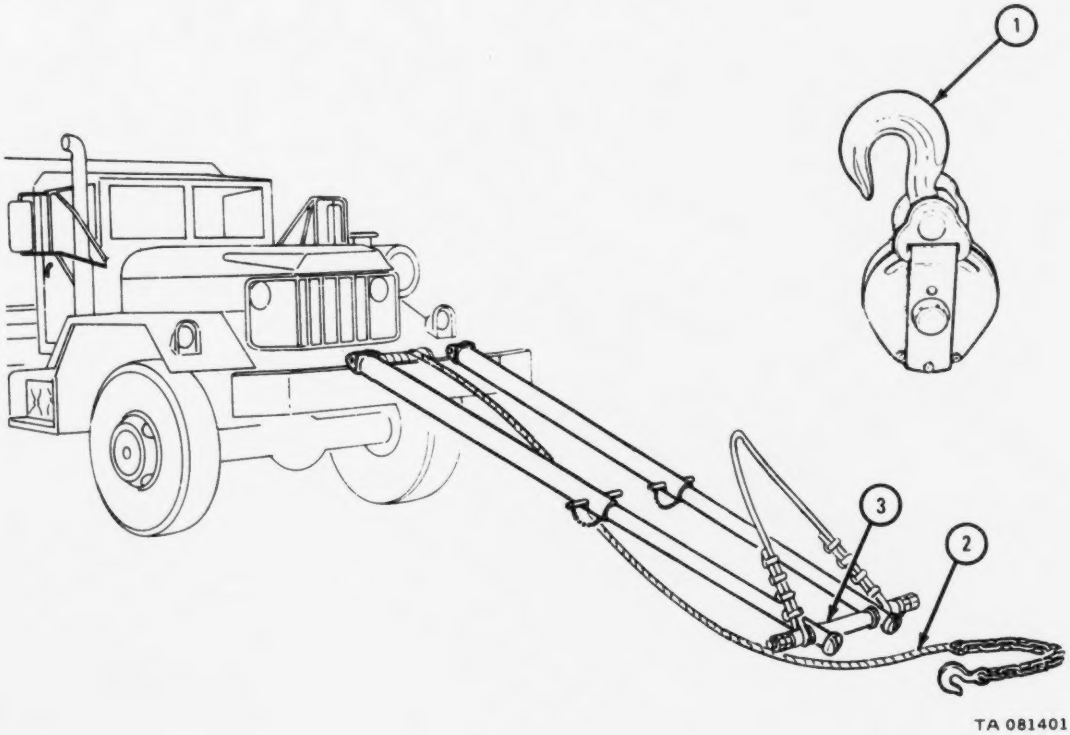


TA 081400

FRAME 4

1. Unwind 20 feet of winch cable. Refer to TM 9-2320-260-10.
2. Open snatch block (1).
3. Put winch cable (2) in snatch block (1).
4. Close snatch block (1) and hook it on spreader tube (3).

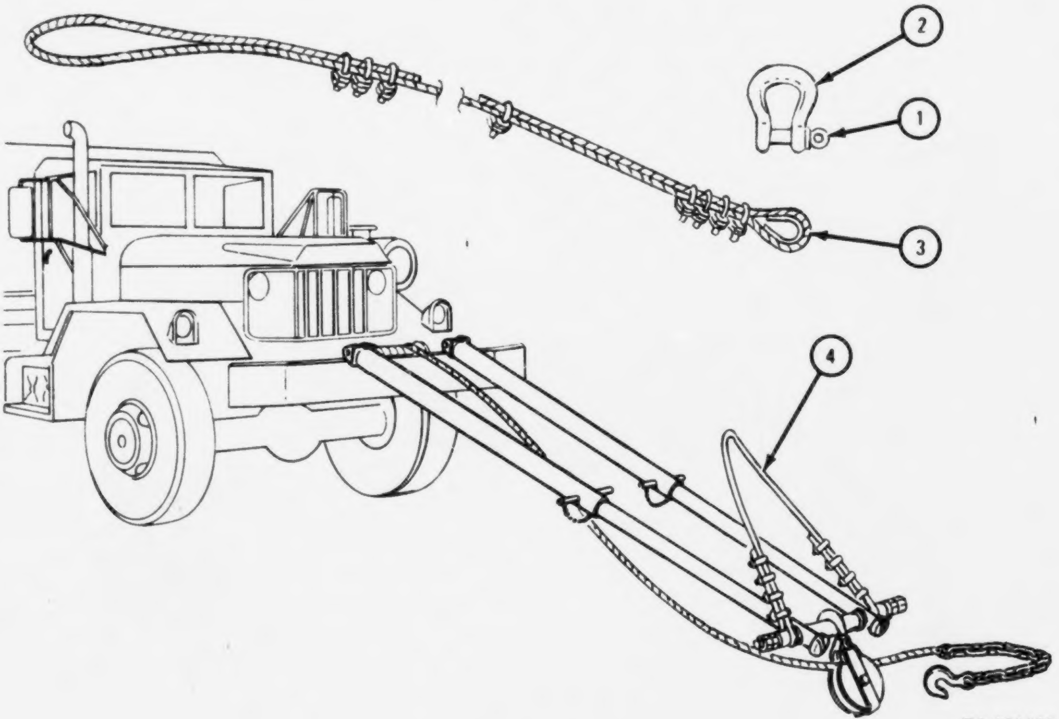
GO TO FRAME 5



FRAME 5

1. Unscrew and take pin (1) out of hook (2).
2. Put hook (2) on small loop of cable (3).
3. Put cable harness (4) in hook (2).
4. Screw in and tighten pin (1).

GO TO FRAME 6

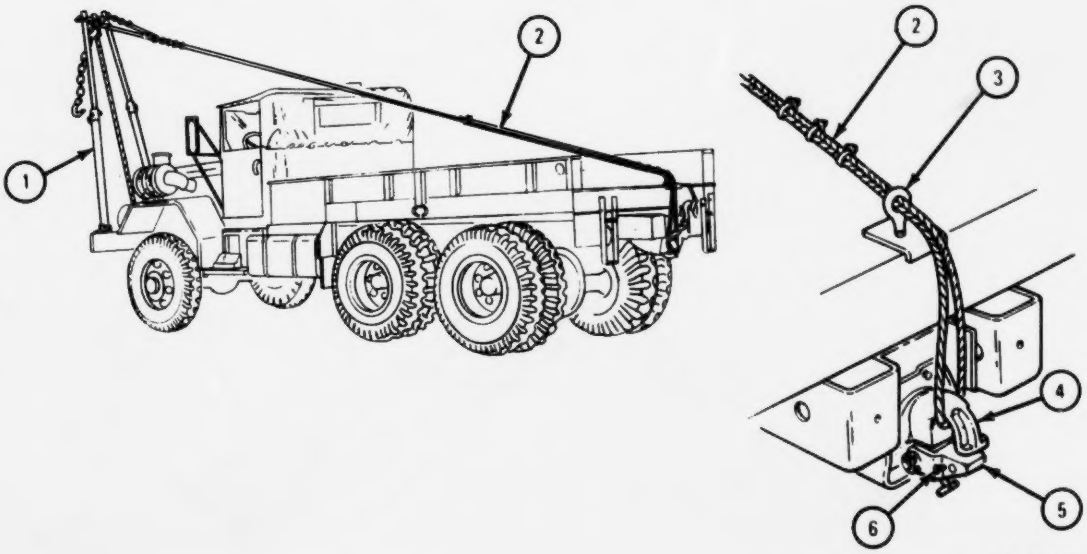


TA 081402

FRAME 6

Soldiers A and B	1.	Lift two A-frame legs (1) and hold them up until soldier C hooks end of cable (2).
Soldier C	2.	Take looped end of cable (2) to rear of truck and pass it through eyebolt (3).
	3.	Turn pintle hook (4) so lock (5) is on bottom. Pull out and throw away cotter pin (6) and open pintle hook.
	4.	Put loop of cable (2) in pintle hook (4). Close lock (5). Using pliers, put in and open ends of cotter pin (6).

GO TO FRAME 7



TA 081403

FRAME 7

Soldiers A and B 1. Hold two A-frame legs (1) at 60° angle to ground while soldier C adjusts cable (2).

Soldier C 2. Using wrench, loosen eight nuts (3) on four clamps (4). Pull on end of cable (2) to take out slack. Using wrench, tighten eight nuts (3).

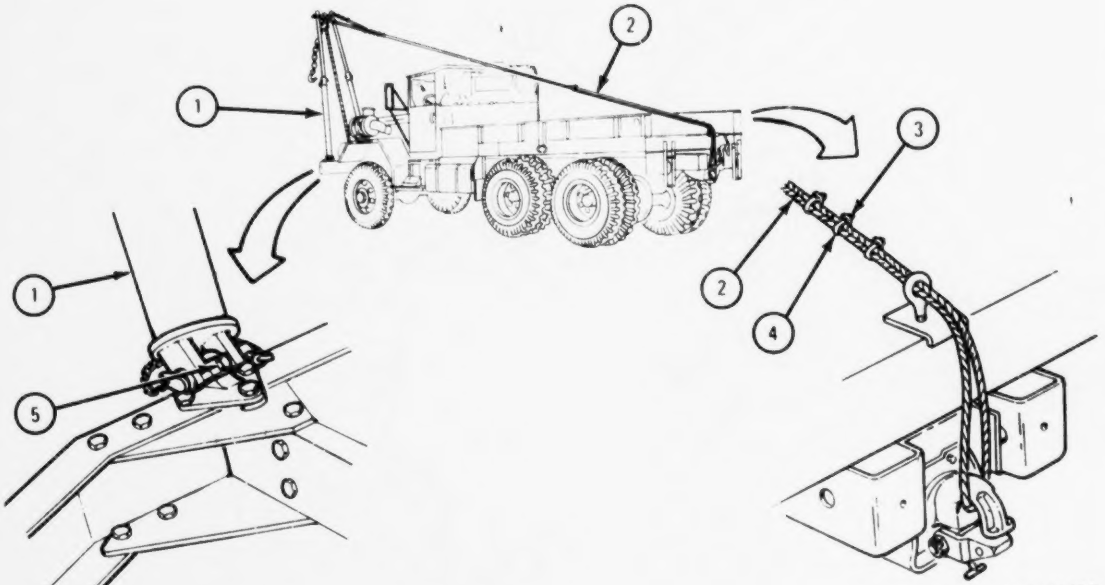
3. Using wrench, screw in adjusting screw (5) at bottom of each A-frame leg (1) until each adjusting screw is snug.

NOTE

Follow-on Maintenance Action Required:

1. On cargo trucks, put tailgate back on. Refer to TM 9-2320-260-10.
2. Put on cab cover. Refer to TM 9-2320-260-10.
3. Put windshield back up in place and fasten it. Refer to TM 9-2320-260-10.

END OF TASK



19-21. DECONTAMINATION APPARATUS BRACKET INSTALLATION.

TOOLS: 7/16-inch wrench
Ruler
Scribe
Electric drill
Drill bit

SUPPLIES: Mounting bracket, pn 11648456

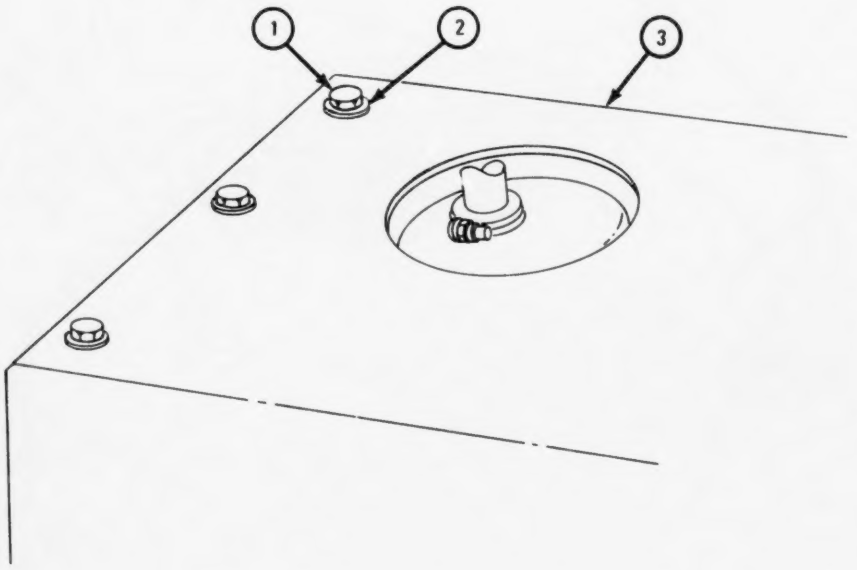
PERSONNEL: One

EQUIPMENT CONDITION: Truck parked, engine off, handbrake set.

FRAME 1

1. Using 7/16-inch wrench, unscrew and take 12 screws (1) and lockwashers (2) out of cab tunnel assembly (3).

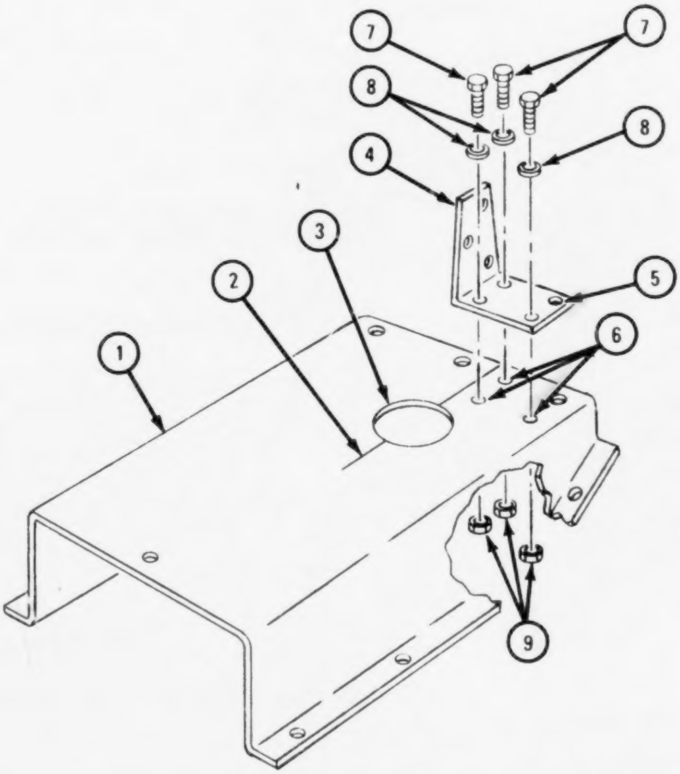
GO TO FRAME 2



FRAME 2

1. Put cab tunnel (1) on a flat surface.
2. Using ruler and scribe, draw line (2) through center of hole (3).
3. Put bracket (4) on cab tunnel (1). Aline front of bracket (4) with line (2). Hole (5) goes over hole in cab tunnel (1).
4. Using scribe, mark three holes (6). Take off bracket (4).
5. Using electric drill motor and drill bit, drill three 0.28-inch holes (6) as marked.
6. Put on bracket (4). Put in three capscrews (7) and washers (8).
7. Using 7/16-inch wrench, screw on and tighten three nuts (9).

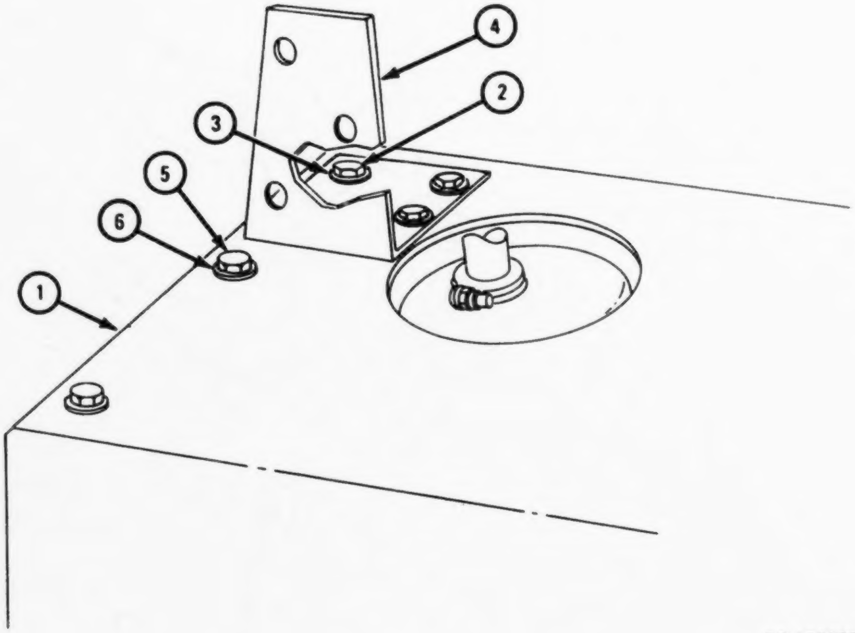
GO TO FRAME 3



FRAME 3

1. Put cab tunnel assembly (1) back on cab floor.
2. Using 7/16-inch wrench, screw in and tighten capscrew (2) with lockwasher (3) through bracket (4).
3. Using 7/16-inch wrench, screw in and tighten 11 capscrews (5) with lockwashers (6).

END OF TASK



TA 103259

APPENDIX A

REFERENCES

A-1. PUBLICATION INDEXES AND GENERAL REFERENCE.

Indexes should be checked often for the latest changes or revisions of references given in this appendix and for new publications on materiel covered in this technical manual.

a. Military Publications Indexes.

Index of Army Motion Pictures and Related Audio-Visual Aids	DA Pam 108-1
Index of Administrative Publications	DA Pam 310-1
Index of Blank Forms	DA Pam 310-2
Index of Doctrinal Training and Organizational Publications	DA Pam 310-3
Military Publications:	
Index of Technical Manuals, Technical Bulletins, Supply Bulletins, and Lubrications Orders	DA Pam 310-4
Index of Supply Catalogs and Supply Manuals (excluding types 7, 8, and 9)	DA Pam 310-6
Index of Modification Work Orders	DA Pam 310-7
Common Tools and Equipment Supply Manuals	DA Supply Manuals SC-4910-95-CL-A01, A02, A50, A63, A64, A65, A67, A68, A72, A73, and A74. SC-5180-90-CL-N-23, SC-4910-95-CL-A31 and -A32

b. General Reference.

Authorization Abbreviations and Brevity Codes	AR 310-50
Dictionary of United States Army Terms	AR 310-25

A-2. FORMS.

The following forms are for this materiel (refer to DA pamphlet 310-2 for index of blank forms and to TM 38-750 for explanation of their use).

Recommended Changes to Publications	DA Form 2028
Maintenance Request - Continuation Sheet	DA Form 2407-1
Equipment Log Assembly (Records)	DA Form 2408
Processing and Deprocessing Records for Shipment, Storage, and Issue of Vehicles and Spare Engines	DA Form 1397

A-3. OTHER PUBLICATIONS.

a. Vehicle.

Lubrication Order	LO 9-2320-260-12
Operator's Manual	TM 9-2320-260-10
Direct Support and General Support Maintenance Manual	TM 9-2320-260-34
Organizational Maintenance Repair Parts and Special Tool List	TM 9-2320-260-20P
Direct Support and General Support Maintenance Repair Parts and Special Tool List	TM 9-2320-260-34P
Equipment Serviceability Criteria	TM 9-2320-260-ESC

b. General.

Camouflage	FM 5-20
Camouflage of Vehicles	FM 5-20B
Chemical, Biological, and Radiological (CBR) Decontamination	TM 3-220
Chemical, Biological, Radiological, and Nuclear Defense	FM 21-40
Safety Inspection and Testing of Lifting Devices	TB 43-0142
Rigging	TM 5-725
Accident Reporting and Records	AR 385-40
Basic Cold Weather Manual	FM 31-70
Cooling Systems: Tactical Vehicles	TM 750-254
Manual for the Wheeled Vehicle Driver	TM 21-305
Driver Selection and Training (Wheeled Vehicles)	TM 21-300
Deepwater Fording of Ordnance Materiel	TM 9-238
Fording Kits for Combat and Transport Vehicles	MIL-F-3201
Maintenance Assitance and Instruction Team (MAIT) Program	AR 750-51

Transportability Guidance, Trucks, 5 ton, 6x6	TM 55-2320-260-15-1
Army Motor Transport Operations	FM 55-30
Mountain Operations	FM 31-72
Northern Operations	FM 31-71
Operation and Maintenance of Ordnance Materiel in Cold Weather (0°F to -65°F)	TM 9-207
Painting Instructions for Field Use	TM 43-0139
Petroleum Handling Equipment and Operation	TM 10-1101
Preservation-Packaging, Methods of	MIL-P-116
Principles of Automotive Vehicles	TM 9-8000
Prevention of Motor Vehicle Accidents	AR 385-55
Organizational Maintenance: Spark Plugs Used on Ordnance Materiel	TM 9-8638
Functional Grouping Codes - Combat, Tactical, and Support Vehicles and Special Purpose Equipment	TM 750-93-1
The Army Management System	TM 38-750
Administrative Storage of Equipment	TM 740-90-1

c. Maintenance and Repair.

Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related Materials Including Chemicals	TM 9-247
General Repair for Canvas and Webbing	FM 43-3
Sheet Metal Work: Body, Fender, and Radiator Repairs	FM 43-2
Radiator Test	TB 750-254
Color and Marking of Military Vehicles, Construction Equipment and Materials Handling Equipment (Change 2)	TB 746-93-1
Operator's Manual: Lathe, Brake Drum, Floor Mounted	TM 9-4910-482-10
Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems	TB 750-651
Organizational Care, Maintenance and Repair of Pneumatic Tires and Inner Tubes	TM 9-2610-200-20
Combat Vehicles and Tactical Transport Vehicles: Procedure for Starting Engines with Slave Cable	TB ORD 537
Description, Use, Bonding Techniques, and Properties of Adhesives	TB ORD 1032
General Supply: Winterization Kits for Army Tank-Automotive Materiel	SB 9-16
Inspection, Care and Maintenance of Antifriction Bearings	TM 9-214
Operator and Organizational Maintenance Manual for Lead-Acid Storage Batteries	TM 9-6140-200-12
Army Materiel Maintenance Concepts and Policies	AR 750-1
Operator's Manual: Welding Theory and Application	TM 9-237

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19-6	19-3 c			FRAME 1, step 3 reads "Using wrenches, screw on and tighten nut (4)." Should read "Using wrenches, screw on and tighten four nuts (4)."
19-34	19-5 d			FRAME 3, change illustration callouts. Reason: callouts for outlet pipe (2) and reducer (3) are reversed.
19-207	19-9			Subparagraph a, second sentence refers to TM 9-194. Should refer to ST 9-194.

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1,000 Millimeters = 39.37 Inches
1 Kilo Meter = 1,000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces
1 Kilogram = 1,000 Grams = 2.2 Lb
1 Metric Ton = 1,000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1,000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

TEMPERATURE

5/9 (°F -32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 C° +32 = F°

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds Per Square Inch	Kilopascals	6.895
Miles Per Gallon	Kilometers Per Liter	0.425
Miles Per Hour	Kilometers Per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Millimeters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds Per Square Inch	0.145
Kilometers Per Liter	Miles Per Gallon	2.354
Kilometers Per Hour	Miles Per Hour	0.621